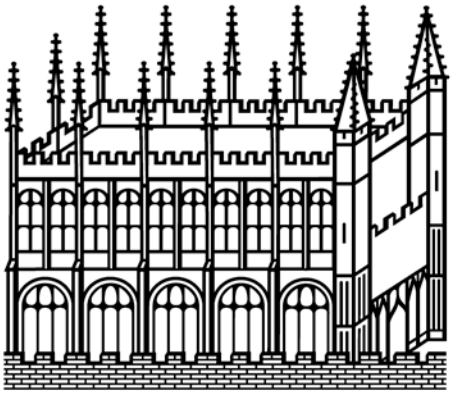

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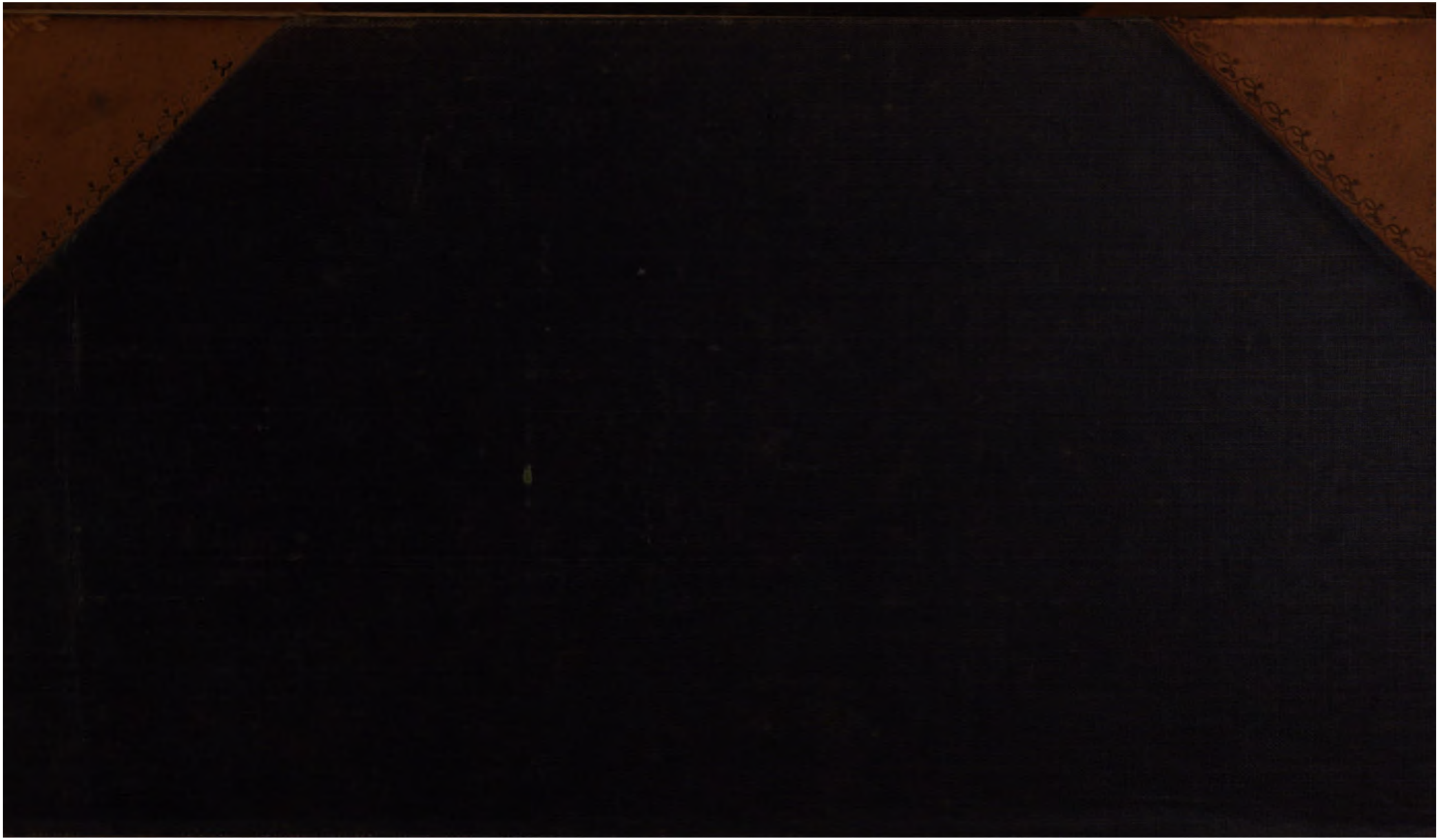

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ARSENIC.

ARSENIC, *αρσενικον*, ARSENICUM, in mineralogy and chemistry, called by Aristotle *σανδραχη*, by Theophrastus *αρρενικον*, by the Romans orpimentum and arsenicum; is a reddish-colored ponderous mineral, caustic, corrosive, and highly poisonous; which was used by the ancients in medicine and painting. Aristot. de Hist. Anim. l. 8, c. 24; Theophrast.; Dioscor. l. 5, c. 121; Plin. l. 34, c. 18; Cels. de Re Med. l. 5, c. 5; Gal. de Comp. Med. sec. Loc. l. 4. In the Linnæan system, it is a genus of metals having these generic characters: Bluish white, some becoming black, and falling to powder in the air; soft and extremely brittle; specific gravity 8·310: subliming without melting in a moderate heat in a white powder, and emitting a strong garlic smell. Its sublimed oxid gives an acrid taste to water, and turns vegetable blues red. When dissolved in muriatic acid, and a watery solution of sulphurated hydrogen poured into it, it precipitates a fine yellow powder.

The principal species are, 1. A. nativum, native asenic, of the three varieties: *α*. Uncombined, having a metallic lustre and separating into spherical incrustations. *β*. With micaceous particles. *γ*. Friable and porous. Found in the British Isles, Norway, Germany, Saxony, &c. in spar, baryte, or feldspar, massive, rarely disseminated, often composed of hemispheric layers, corroded, branched, perforated, botryoidal, or stalactitic; color lead-gray, but its surface soon tarnishing and becoming black by exposure to the air; streak bluish-gray, powder dull and blackish; sometimes a little sonorous when struck against a hard body, and so soft as to be easily cut with a knife. Before the blow-pipe it emits a white smoke, diffusing its peculiar and highly poisonous vapors to a great distance; burning with a blue flame and gradually vanishing, depositing a white oxid in the form of a powder: specific gravity 5·670 to 5·729; always alloyed with some iron, and often contains some cobalt, bismuth, silver, and sometimes a little gold.

2. A. calciforme; white arsenic; white oxid of arsenic; white, soluble in eighty times its weight of water. It is found in a loose dust or mealy powder; in a state of crystallisation; or in an indurated state combined with earth; in various parts of Great Britain, Germany, Hungary, Saxony, Bohemia, &c. Color white or gray, with often a tinge of red, yellow, green, or black: before the blow-pipe it sublimes, but does not inflame, and tinges borax green: specific gravity 3,700.

3. A. auripigmentum; orpiment, yellow arsenic. Ponderous, yellow, curved, or undulately foliated, of a waxy internal lustre, evaporating almost entirely before the blow-pipe. Found in Great Britain, Hungary, Georgia, Turkey, &c.; massive, disseminated, or in small imperfect crystals; color, various shades of yellow, with a considerable waxy lustre, and some transparency; streak orange-yellow, not metallic; texture foliated, with the plates mostly curved or undulated, rarely striate, a little flexible, but not elastic; effervesces with hot nitric acid, burns with a bluish flame, and before the blow-pipe evaporates, leaving behind a small portion of earth: specific gravity 3·048 to 3·521.

4. A. sandaraca; red arsenic; ruby arsenic; realgar. Somewhat ponderous, red, with an orange-yellow streak, in straight foliations, melting easily before the blow-pipe; burning with a blue flame and white arsenical vapors. Found in Sicily, Naples, Hungary, Bohemia, China, Japan, &c.; massive, disseminated, superficial, or crystallised in small acute-angled, quadrangular, or acicular prisms; color aurora-red, ruby, scarlet, crimson or blood-red, often variegated with yellow traces: texture lamellar, with the foliations a little flexible, and so soft as to be cut with a knife, and frequently exhibiting a brilliant lustre; streak yellowish-red; powder scarlet; in nitric acid it loses its color; specific gravity 3·338.

5. A. sulphuratum; marcasite; white mundic; white pyrite; pyritical arsenical ore. Hard, bluish-gray with metallic lustre, before the blow-pipe emitting white arsenical vapors and blue sulphureous flames. Found in various parts of Great Britain, Germany, Sweden, Bohemia, Saxony, &c. in irregular masses, disseminated, investing or crystallised in cubes or four-sided prisms; specific gravity 6·522.

6. A. albicans; misspickel; marcasite. Of a steel-white color and lustre, hard, emitting white arsenical vapors before the blow-pipe, but no sulphureous flame or vapor. Found in Cornwall, near Dublin, in Bohemia, Silesia, Saxony, &c. generally dispersed among tin ores in granulations, or crystallised in four-sided double pyramids, or four-sided quadrangular prisms: color sometimes silvery, gray, or yellowish, or iridescently variegated when tarnished: texture compact, sometimes a little splintery, with the surface marked with decussate grooves or black ramifications; effervesces with nitric acid without heat, and yields

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an arsenical smell when rubbed. It consists of arsenic alloyed with a considerable quantity of iron, but little or no sulphur; specific gravity from 5·753 to 6·522.

7. A. argentiferum; argentiferous arsenic. Of a silvery lustre and very fine granular texture, emitting arsenical vapors before the blowpipe, and when fused with lead leaving a silver bead. Found in the mines of Saxony, Bohemia, Germany, and Spain; massive, disseminated, or acicular; color nearly that of the last, but brighter and more permanent; burns with a white flame, and leaves a reddish residuum: by solution in nitro-muriatic acid the silver will be precipitated. It consists of arsenic, sulphur, iron, and from 1 to 10 or 12 per cent. of silver: specific gravity 4·087.

The following is the method of the celebrated Mr. Chevenix for the assay and analysis of arsenical ores. Reduce the ore to a very fine powder, and digest it in nitric acid sufficient to acidify and take up the whole of the arsenic; pour off the clear liquor, and boil on the residue some distilled water: filter, and add the water to the nitrous solution: then neutralise the excess of acid by potash, taking care, however, not to have an excess of alkali, and add nitrate of lead as long as any precipitate takes place: wash the precipitate in cold water, dry, and weigh it. As the arsenical ores often contain sulphur, it is possible that the arseniat of lead thus procured may be mixed with a little sulphat of lead: to decide this, digest the powder in some warm dilute muriatic acid, and the arseniat of lead will be dissolved, leaving the sulphat behind.

The arsenic of commerce is prepared in Saxony by roasting the cobalt ores in the manufacture of zaffre. These ores consist principally of arsenic, cobalt, iron, and a little sulphur; the first and last ingredients are easily separated by roasting, which is performed not in the open air, but in an oven, the flue of which runs horizontally to a considerable distance before it bends upwards. The arsenic and sulphur, when liberated, are deposited for the most part in the horizontal flue. In this state it is called

Crude arsenic, or flowers of arsenic, and the form it assumes is that of a grayish meal streaked with yellow, which is occasioned by the sulphur uniting with parts of the arsenic, and composing orpiment. From the crude arsenic the

White arsenic of commerce is prepared by mixing the crude with potash or lime, and resubliming. The sulphur and other impurities are thus combined with the alkali, and the white oxide is driven over into a heated receiver, where it melts into a heavy, colorless, transparent glass: by exposure to the air for a short time this glass becomes opaque, and resembles in its fracture the finest white china; it is in this state that the white arsenic of commerce is sold in the shops, and kept in our laboratories; and as it is then an oxide of the metal approaching very nearly to a state of purity, it is not difficult, by separating its oxygen, to reduce it into

Pure metallic arsenic. For this purpose the white arsenic is mixed with any of the vegetable or animal expressed oils, till it becomes of the consistence of very soft glazier's putty, and round or oblong pieces of the paste are dropped into a Florence flask, or earthen retort, so as not to adhere to the sides. It is then put into a sand-bath, or over a gentle charcoal fire, and heated very gradually until it ceases to emit thick vapors, when the heat may be increased by degrees to obscure redness. Shortly after the vessel may be removed, and when cold, broken; the neck and upper part will contain a crystallised oxide of arsenic; below, a thick crust of metallic arsenic; and at the bottom some impurities, which must be laid aside. The other products are to be pulverised with half their weight of charcoal, and sublimed again as before; by which means the arsenic is rendered pure, and will be found to line the vessel in the form of a shining crust and crystals.

The principal properties of pure arsenic, beside those mentioned in the beginning of this article, are the following:—That it is not perceptibly soluble in water, and is easily tarnished by exposure to the air; the best method of preserving it unaltered is to immerse it in water or alcohol. With carbon or hydrogen it does not combine; but the latter substance, in the state of gas, dissolves it. Oxygen unites with it by combustion, forming arsenical acid. With sulphur it may be readily united, forming either realgar or orpiment, according to the proportions of the ingredients, or the methods of uniting them: these substances are really sulphurets of arsenic, and their properties, with their mode of preparation, when not found native, may be found under their names. Arsenic combines also readily with phosphorus, forming phosphuret of arsenic, which is black and brilliant; but with azotic gas it has not been united. Muriatic acid attacks arsenic only if aided by heat; but, by distilling equal parts of orpiment and corrosive muriate of mercury (corrosive sublimate) in a gentle heat, a blackish corrosive liquor is obtained, which is the sublimated muriat of arsenic, or butter of arsenic. Arsenic combines with most metals, forming with them alloys, and rendering them more fusible and brittle; though such of them as were before very fusible become refractory: it possesses also the singular property of destroying the magnetic virtue of iron, and of all other metals susceptible of it.

The most useful alloys of arsenic are:—1. With platinum, which is formed by fusing that metal and the white oxide of arsenic together. By this means platinum, itself so untractable, may be wrought into the utensils required. The mixture, after fusion, is hammered at a red heat into bars, and the arsenic is gradually driven off. 2. With copper, which is formed by fusing the two metals together in a close crucible, their surface being covered with common salt, to prevent the arsenic from being oxidised by the air. This alloy is white and brittle, and when mixed with a little tin or bismuth is used for a variety of purposes in the arts, when it is known by the names of white copper or white tombac. 3. With iron, which is likewise done by fusion. This alloy, however, is often found native, and is then called misspickel. The other metals with

which arsenic has been united, are gold, silver, tin, lead, nickle, zinc, antimony, and bismuth: it also forms an amalgam with mercury, by keeping them some hours over the fire, constantly agitating the mixture. Arsenic is capable of combining with two different proportions of oxygen; by the first is formed the white oxide already described, or arsenious acid, as it is denominated by Fourcroy, on account of the many acid properties which it exhibits; by the second is produced arsenic or arsenical acid, which was discovered in 1775 by Scheele, who also made himself acquainted with its most remarkable properties.

In pharmacy, the white oxide of arsenic is directed by the London Pharmacopœia to be sublimed; after which it is to be boiled with an equal weight of carbonate of potash, in order to form the liquor arsenicalis, sometimes called Fowler's solution, or the tasteless ague drop. This contains one grain of arsenic in two drams, is given in doses of a few drops in intermittent fevers, and in several eruptive diseases. Caution is necessary in the exhibition of so dangerous a remedy. Arsenic has been used externally in cancer, lupus, &c. in form of an ointment. For an account of arsenic, as a poison, its symptoms, effects, and remedies, see Poison.

Arsenical Magnet, Magnes Arsenicalis, is a preparation of antimony, with sulphur and white arsenic.

ARSENIUS, a deacon of the Roman church of great learning and piety, who was selected by the pope as tutor to Arcadius, son of the emperor Theodosius. Arsenius arrived at Constantinople A. D. 383. The emperor happening one day to go into the room where Arsenius was instructing his pupil, found Arcadius seated and his preceptor standing; at this he was exceedingly displeased, took from his son the imperial ornaments, made Arsenius sit in his place, and ordered Arcadius for the future to receive his lessons standing uncovered. Arcadius, however, profited but little by his tutor's instructions, for some time after he formed a design of despatching him. Arsenius, however, hearing of the design, retired to the deserts of Sceté, where he passed many years in devotion, and died aged ninety-five.

Arsenius, bishop of Constantinople, in the thirteenth century, excommunicated Michael Paleologus, for taking the imperial crown from John Lascaris the son of Theodore. Though Michael solicited absolution, the bishop refused, unless he would restore the crown; in consequence of which Arsenius was banished to a small island, where he died.

ARSENOTHELYS, among ancient naturalists, the same with hermaphrodite. The Greeks use the word both in speaking of men and beasts, it is formed from *αρσην* and *θηλυς*, male and female.

ARSENVAL, in geography, a town of France, in the department of the Aube, and chief place of a canton in the district of Bar-sur-Aube, twenty-three miles east of Troyes.

ARSES, or Arsames, king of Persia, succeeded Artaxerxes Ochus about A. M. 3612, and after a short reign of less than four years was slain by Bagoas, who had murdered his predecessor, and succeeded by Darius Codomanus.

ARSHIN, in commerce, the most common Russian measure of length = 16 vershok = 315$\frac{1}{9}$ Paris lines. It is also a Chinese measure, but one Chinese arshin = 302 Paris lines. Three arshins = 1 fathom, and 500 fathoms = 1 verst.

ARSIA, in ancient geography, a small river which had a northern course, and served as a boundary between Histria and Illyria, to the north of the Flanatic gulf. It there terminated Italy on the north-east of the Polatic promontory.

ARSINOE, in ancient geography, the name of various towns mentioned by Strabo, Ptolemy, Stephanus, &c. viz. of five towns in Cilicia, one of which had a station for ships; of three in or near Cyprus; viz. one inland, formerly called Marium, another north of it between Acamas and Soli, and the third in the south, with a port, between Citrum and Salamis. A sea-port in Cyrene, formerly called Teuchira. A town in Egypt near the west extremity of the Arabian Gulf, and south of Hierapolis, called also Cleopatris. Another in the Nomos Arsinoites, mentioned on some coins of Adrian, and formerly called Crocodilorum Urbs, from its abounding with crocodiles; Ptolemy calls this town an inland metropolis, with a port called Ptolemais. A sea-port of Lycia formerly named Patara, but called Arsinoe by Ptolemy Philadelphus after his queen. And three towns of Troglodytæ, the chief of which was situated near the mouth of the Arabian gulf, which towards Ethiopia is terminated by a promontory called Dire. This Arsinoe is called Berenice, with the distinction Epidires; because situated on a neck of land running out a great way into the sea. Also the name of several princesses of Egypt; particularly, 1. the daughter of Ptolemy Lagus, and wife of Lysimachus king of Thrace: 2. the wife of Ptolemy Philadelphus, who named several towns after her.

Arsinoe, in entomology, a species of papilio, found in the island of Amboyna, the wings of which are tailed, indented, fulvous, spotted with black; and the posterior ones marked both above and beneath with two ocellated spots. It is figured by Seba and Cramer.

ARSINOITES, Nomos, an ancient district of Egypt, west of the Heracleotes, on the western banks of the Nile.

ARSIS, and Thesis, in prosody, are names given to two proportional parts into which every foot or rhythm is divided. By arsis and thesis are usually meant no more than a proportional division of the metrical feet, made by the hand or foot of him that beats the time. And in measuring the quantities of words the hand is elevated, as well as let fall; that part of the time which is taken up in measuring the foot, by lifting the hand up, is termed arsis or elevatio; and the part where the hand is let fall, thesis or positio. Vid. Augustin de Musica, lib. ii. cap. 10. In plaudendo enim quia elevatur et ponitur manus, partem pedis, sibi elevatio vendicat, partem positio.

Arsis and thesis are used as musical terms

when the subject of a fugue or point is inverted or reversed; i. e. when one part rises and the other falls. These two words are Greek: arsis comes from αιρω, tollo, I raise or elevate; θεσις depositio, remissio, a depression or lowering. These terms were applied by the ancients to the motion of the hand in beating time.

ARSON, in English law, is the malicious and wilful burning of the house or out-house of another man, which is felony. This is an offence of great malignity, and more pernicious to the public than simple theft; because, first, it is an offence against that right of habitation which is acquired by the law of nature as well as by the laws of society; next, because of the terror and confusion that necessarily attends it; and, lastly, because in simple theft the thing stolen only changes its master, but still remains *in esse* for the benefit of the public; whereas by burning, the very substance is absolutely destroyed.—It is also frequently more destructive than murder itself, of which too it is often the cause; since murder, atrocious as it is, seldom extends beyond the felonious act designed; whereas fire too frequently involves in the common calamity persons unknown to the incendiary, and not intended to be hurt by him, and friends as well as enemies. If the house be a man's own, the act is not felony and punishable with death, but only a great misdemeanor, and punishable by fine, imprisonment or pillory.

ARSUR, Asor, Arsaf, or Arsid, a hamlet on the coast of Syria, which has sometimes received the name of a city, because Solomon is supposed to have built the city Asor upon the site. It contains a fortress and mosque, in the last of which are a few Mahommedan monks.

ARSURA, in ancient customs, a term used for the melting of gold or silver, either to refine them or to examine their value. The method of doing this is explained at large in the Black Book of the Exchequer, ascribed to Gervaise in the chapter De Officio Militis Argentarii, being in those days of great use, on account of the various places and different manners in which the king's money was paid. Arsura is also used for the loss or diminution of the metal in the trial. In this sense a pound was said, tot ardere denarios, to lose many penny-weights.

Arsura, in medicine, is used by some writers for the erysipelas.

Arsura, in metallurgy, is used for the dust and sweepings of silversmiths, and others who work in silver, melted down, and which they call their sweep.

ART, Ar'tful, Ar'tfully, Ar'tfulness, Ar'tisan, Ar'tist, Ar'tless, Ar'tlessly, Ar'tifice, Ar'tificer, Ar'tificial, Arti'ficially. Lat. *ars*, from αρετη, manly energy, strength, or skill. The power of doing any thing arising from a clear and perspicuous knowledge of what the practice of it requires. Artful signifies evil intention. One who exercises a mechanical art is an artisan, he who excels in the fine arts is an artist. Any skilful workman is an artificer; artifice in its present use deception.

Hel. We, Hermia, like two *artificial* gods,
Created with our needles both one flower,
Both on one sampler, sitting on one cushion;
Both warbling of one song, both in one key;
As if our hand, our sides, voices, and minds,
Had been incorporate. *Shakspeare.*

Why, I can smile, and murder while I smile;
And cry, content, to that which grieves my heart;
And wet my cheeks, with *artificial* tears. *Id.*

Weaker than a woman's tear,
Tamer than sleep, fonder than ignorance,
And *artless* as unpractis'd infancy.
Dryden. Troilus and Cressida.

Rich with the spoils of many a conquer'd land,
All arts and *artists* Theseus could command,
Who sold for hire, or wrought for better fame
The master painters and the carvers came. *Dryden.*

The rest in rank: Honoria, chief in place
Was *artfully* contriv'd to set her face,
To front the thicket, and behold the chace. *Id.*

Vice is the natural growth of our corruption. How irresistibly must it prevail, when the seeds of it are *artfully* sown, and industriously cultivated. *Rogers.*

What are the most judicious *artisans*, but the mimics of nature? *Wotton's Architecture.*

Best and happiest *artisan*,
Best of painters, if you can,
With your many-color'd art,
Draw the mistress of my heart.
Guardian.

Thus *artists* melt the sullen ore of lead,
With heaping coals of fire upon its head;
In the kind warmth, the metal learns to glow,
And loose from dross the silver runs below.
Parnell.

Sweet *artless* songster! thou my mind dost raise
To airs of spheres, yea, and to angels's lays.
Drummond.

In oratory, the greatest *art* is to hide *art*. *Swift.*

If we compare two nations in an equal state of civilisation, we may remark that where the greater freedom obtains, there the greater variety of *artificial* wants will obtain also. *Cumberland.*

The merchant, tradesman, and *artisan* will have their profit upon all the multiplied wants, comforts, and indulgences of civilised life. *Id.*

In every quarter of this blessed isle,
Himself [the mind] both present is and president,
Nor once retires, a happy realm the while,
That by no officers lewd ravishment,
With greedie lust and wrong consum'd *art*,
He all in all, and all in every part,
Does share to each his due and equal dole compart.
Fletcher's Purple Island.

Among the several *artifices* which are put in practice by the poets, to fill the minds of an audience with terror, the first place is due to thunder and lightning. *Addison.*

Poets, like painters, thus unskill'd to trace
The naked nature and the living grace,
With gold and jewels cover ev'ry part,
And hide with ornaments their want of *art*.
Pope's Essay on Criticism.

O still the same Ulysses, she rejoin'd;
In useful craft successfully refin'd;
Artful in speech, in action, and in mind. *Pope.*

Embosom'd in the deep where Holland lies,
Methinks her patient sons before me stand,
Where the broad ocean leans against the land,
And sedulous to stop the coming tide,
Lift the tall rampire's *artificial* pride. *Goldsmith.*

A man will no more carry the *artifice* of the bar into the common intercourse of society, than a man who is paid for tumbling on his hands will continue to tumble when he should walk on his feet. *Johnson.*

He feels no ennobling principle in his own heart, who wishes to level all the *artificial* institutions which have been adopted for giving a body to opinion, and permanence to fugitive esteem. *Burke.*

Art has been more particularly defined to be a habit of the mind prescribing rules for the due production of certain effects; or the introducing the changes of bodies from some fore-knowledge and design in a person endued with the principle or faculty of acting. The word has been sometimes derived from αρος, utility, profit; and is found in that sense in Æschylus.

According to lord Bacon it is a proper disposition of the things of nature by human thought and experience, so as to make them answer the designs and uses of mankind. Nature, according to that philosopher, is sometimes free, and at her own disposal; and then she manifests herself in a regular order; as we see in the heavens, plants, animals, &c.—Sometimes she is irregular and disorderly either through some uncommon accident or depravation in matter, when the resistance of some impediment perverts her from her course; as in the production of monsters. At other times she is subdued and fashioned by human industry, and made to serve the several purposes of mankind. This last is what we call art. In which sense, art stands opposed to nature. Hence the knowledge of nature may be divided into the history of generation, of pretergeneration, and of arts. The first considers nature at liberty; the second her errors; and the third her restraints.

Art has been distinguished from science; by the latter being regarded as furnishing the principles of all art. Or science, scientia, all human knowledge, is said to be divisible into those purer sciences which relate to the ideas or laws of the mind, and the relation they bear to each other; and the mixed or applied sciences—that relation which the same ideas bear to the external world. In this view the mixed and applied sciences are but other terms for all the fine and useful arts. Chambers has observed long ago, in the excellent preface to his original Cyclopædia: An Art and a Science, only seem to differ as less and more pure: a science is a system of deductions made by reason alone, undetermined by any thing foreign or extrinsic to itself: an art, on the contrary, requires a number of data, and postulata, to be furnished from without; and never goes any length, without at every turn needing new ones. It is, in one sense, the knowledge and perception of these data that constitutes the art; the rest, that is, the doctrinal part, is of the nature of science; which attentive reason alone will descry. An art, in this light, appears to be a portion of science, or general knowledge, considered, not in itself as science, but with relation to its circumstances or appendages. In a science the mind looks directly backwards and forwards to the premises and conclusions: in an art we also look laterally to the concomitant circumstances. A science, in effect, is that to an art, which a stream running in a direct channel, without regard to any thing but its own progress, is to the same stream turned out of its proper course, and disposed into cascades, jets, cisterns, ponds, &c. In which case the progress of the stream is not considered with regard to itself, but only as it concerns the works; every one of which modifies the course of the stream, and leads it out of its way. It is easy to trace the progress of the former, from its issue, as it flows consequentially; but a man ever so well acquainted with this will not be able to discover that of the latter, because it depends on the genius, humor, and caprice of the engineer who laid the design.'

The learned author of Hermes says, If it be asked, What art is; we have to answer, 'It is an habitual power in man, of becoming the cause of some effect, according to a system of various and well-approved precepts.' If it be asked, On what subject art operates; we can answer, 'On a contingent, which is within the reach of the human powers to influence.' If it be asked, For what reason, for the sake of what, art operates; we may reply, 'For the sake of some absent good, relative to human life, and attainable by man, but superior to his natural and uninstructed faculties.' Lastly, if it be asked, 'Where it is the operations of art end?' We may say, 'Either in some energy, or in some work.' —*Harris's Three Treatises*, dialogue i.

Arts are properly divided into liberal and mechanical:—

Arts, Liberal, or Polite, are those that are noble or ingenious, and worthy of being cultivated for their own sake, without any immediate regard to any pecuniary emolument. Such as depend more on the imagination, or on the labor of the mind, than on that of the hand; or that consist more in speculation than operation, and have a greater regard to amusement and curiosity than necessity. Such are poetry, music, painting, grammar, rhetoric, the military art, architecture, and navigation. They were formerly to be summed up in the following Latin verse:

Lingua, Tropus, Ratio, Numerus, Tonus, Angulus, Astra.

In the eighth century the whole circle of sciences was composed of the seven liberal arts, as they were called; viz. grammar, rhetoric, logic, arithmetic, music, geometry, and astronomy; the three former of which were distinguished by the title of trivium, and the four latter by that of quadrivium.

Arts, Mechanical, are those wherein the hand and body are more concerned than the mind; and which are chiefly cultivated for the sake of the profit attending them. Of which kind are most of those which furnish us with the necessaries of life, and are popularly known by the name of trades and manufactures. Such are weaving, turnery, brewing, masonry, clock-making, carpentry, joinery, foundry, printing, &c. These arts, which indeed are innumerable, were formerly comprised in this verse:

Rus, Nemus, Arma, Faber, Vulnera, Lana, Rates.

They take their denomination from μηχανη, machine, as being all practised by means of some machine or instrument. With the liberal arts it is otherwise; there being several of them which may be learnt and practised without any

instrument at all; as logic, eloquence, medicine, properly so called, &c.

Lord Bacon has observed that the arts which relate to the sight and hearing are reputed liberal, beyond those which regard the other senses, and are chiefly employed in matters of luxury; these are usually called the fine arts; such are poetry, painting, sculpture, music, gardening, and architecture.

As all arts have this common property according to Mr. Harris, that they respect human life, it is evident that some contribute to its necessities, as medicine and agriculture; and others to its elegance, as music, painting, and poetry. The former seem to have been prior in time to the latter. Men must naturally have consulted how to live and to support themselves, before they began to deliberate how to render life agreeable. Indeed this is confirmed by fact; as no nation has been known so barbarous and ignorant as not in some degree to have cultivated the rudiments of these necessary arts; and hence possibly they may appear to be more excellent and worthy, as having claim to a preference derived from their seniority. The arts, however, of elegance are not destitute of pretensions, if it be true that nature formed us for something more than mere existence. Nay farther, if well-being be clearly preferable to mere being, and this, without the other, be contemptible, they may have reason perhaps to aspire even to a superiority. *Harris, ubi supra*, p. 54.

The history of the origin and progress of particular arts is recited under their respective denominations in the course of this work. It may be here observed however, in general, that most of the arts that are necessary to the subsistence, or conducive to the convenience and comfort of mankind, have had a very early origin.

Some useful arts must be nearly coeval with the human race; for food, clothing, and habitation, even in their original simplicity, require some art. Many others are of such antiquity as to place the inventors beyond the reach of tradition. Several have gradually crept into existence without any recorded inventor or history. The busy mind, however, accustomed to a beginning in all things, cannot rest till it finds or imagines a beginning to every art.

It has been generally admitted that the arts had their rise in the East, and that they were conveyed from thence to the Greeks, and from them to the Romans. The Romans, indeed, seem to have been chiefly indebted to the Greeks, by whom they were excelled in point of invention. The Romans acknowledged this superiority, for they sent their youth to Greece in order to finish their education; and from this circumstance we may infer, that they considered that country as the seat of the arts and sciences, and as a school where genius would be excited by the most finished models, and the taste corrected and formed. Pliny and other writers have, nevertheless, given hints which lead us to believe that the Romans possessed a more extensive knowledge of the arts than modern writers are sometimes willing to allow; and that several inventions regarded as recent are only old ones revived and again applied to practice. The dark ages at once extinguished the knowledge of the past, and retarded the revival of art; yet it cannot be denied, that several important discoveries altogether unknown to the ancients were made in those ages. Of this kind were the inventions of paper, painting in oil, the mariner's compass, gunpowder, printing, and engraving on copper: see the several articles. After the invention of the compass and printing, two grand sources were opened for the improvement of science. As navigation was extended, new objects were discovered to awaken the curiosity and excite the attention of the learned; and the ready means of diffusing knowledge afforded by the press, enabled the ingenious to make them publicly known. Ignorance and superstition, the formidable enemies of philosophy in every age, began to lose some of that power which they had usurped, and different states, forgetting their former blind policy, adopted improvements which their prejudices had before condemned.

In countries, however, where civil and ecclesiastical tyranny prevailed, the progress of the useful and elegant arts was slow, and struggled with many difficulties. Particular events, indeed, have occurred in all ages and nations which have roused the exertions of genius, and furnished occasion for making important and useful discoveries. The history of Greece and Rome, and even of modern Europe, will afford many obvious facts that confirm and illustrate this observation. We can add but a few other miscellaneous ones.

In different countries the progress of the same arts has been extremely different. Though the compass was used in China for navigation long before it was known in Europe, yet to this day instead of suspending it in order to make it as freely, it is placed upon a bed of sand, by which every motion of the ship disturbs its operation. Water-mills for grinding corn are described by Vitruvius, and wind-mills were known in Greece and in Arabia as early as the seventh century; yet no mention is made of them in Italy till the fourteenth; and that they were not known in England in the reign of Henry VIII. appears from a household book of the Northumberland family, stating an allowance for three mill-horses 'two to draw in the mill, and one to carry stuff to the mill and fro.' Water-mills for corn may in England have been of a late date. The ancients had mirror-glasses, and employed glass to imitate crystal vases and goblets; yet they never thought of using it in windows. In the thirteenth century, the Venetians were the only people who had the art of making crystal glass for mirrors. A clock that strikes the hours was unknown in Europe till the end of the twelfth century. And hence the custom of employing men to proclaim the hours during night; which to this day continues in Germany, Flanders, and England. Galileo was the first who conceived an idea that a pendulum might be useful for measuring time, and Huygens was the first who put the idea in execution, by making a pendulum clock. He, in 1660, invented a spiral spring for a watch, though a watch was far from being a new invention. Paper was made no earlier than the fourteenth century; and the invention of printing was a century later. Silk manufactures w

ong established in Greece before silk-worms were introduced there. The manufacturers were rovided with raw silk from Persia: but that ommerce being frequently interrupted by war, wo monks, in the reign of Justinian, brought gs of the silk-worm from Hindostan, and aught their countrymen the method of managing em.—The art of reading made a very slow pro-ess. To encourage that art in England, the pital punishment for murder was remitted, if e criminal could but read, which in law lan-uage is termed benefit of clergy. One would agine that the art must have made a very rapid rogress when so greatly favored: but there is a gnal proof of the contrary; for so small an dition of the Bible as 600 copies, translated into nglish in the reign of Henry VIII. was not holly sold off in three years. And the people f England must have been profoundly ignorant Queen Elizabeth's time, when a forged clause dded to the twentieth article of the established reed passed unnoticed till about a century ago.

The circumstances which arouse the national pirit upon any particular art, promote activity o prosecute other arts. When the Romans ame to excel in the art of war, they rapidly im-roved in other arts. Nævius composed in verse even books of the Punic war; besides comedies, eplete with bitter raillery against the nobility. Ennius wrote annals, and an epic poem; and Lucius Andronicus became the father of dramatic poetry in Rome. And the Roman genius for the fine arts was much inflamed by Greek learn-ing when free intercourse between the two na-tions was opened.

The progress of art seldom fails to be rapid, when a people happen to be roused out of a tor-pid state by some fortunate change of circum-stances: public liberty now gives to the mind a spring which is vigorously exerted in every new pursuit. The Athenians made but a mean figure under the tyranny of Pisistratus; but, upon re-gaining their freedom and independence, arts flourished with arms, and Athens became the chief theatre for science as well as for the fine arts. The reign of Augustus Cæsar, which put an end to the rancor of civil war, and restored peace to Rome with the comforts of society, proved an auspicious era for literature; and produced a cluster of Latin historians, poets, and philosophers, to whom the moderns are indebted for their taste. A similar revolution happened in Tuscany about 350 years ago. That country having been divided into a number of small re-publics, the people excited by mutual petty quarrels, became ferocious and bloody, flaming with revenge for the slightest offence. But being united under the Great Duke of Tuscany, these republics enjoyed the sweets of peace and a mild government; when the retrospect of recent ca-lamities roused the national spirit, and produced ardent application to arts and literature. The restoration in England in 1660, which put an end to an envenomed civil war, promoted im-provements of every kind, and arts and industry made a rapid progress. Had the nation, upon that favorable turn of fortune, been blessed with a succession of able and virtuous princes, arts and sciences might much earlier have flourished in their modern perfection. Some important action even of doubtful event, a struggle for liberty, the resisting a potent invader, or the like, have also had beneficial influences on the progress of art. Greece, divided into small states frequently at war with each other, advanced in literature and the fine arts to unrivalled per-fection. The Corsicans, while engaged in a pe-rilous war in defence of their liberties, exerted a vigorous national spirit; they founded a univer-sity for arts and sciences, a public library, and a public bank. After a long stupor during the dark ages of ecclesiastical tyranny, arts and lite-rature revived among the turbulent states of Italy. The Royal Society in London, and the Academy of Sciences in Paris were both instituted after prolonged civil wars that had animated the people and roused their activity. On the other hand, as the progress of arts and sciences towards perfection is greatly promoted by emulation, no-thing is sometimes more fatal than to remove this spur; as when some extraordinary genius appears to soar above rivalship. Thus mathematics long seemed to be declining in Britain: the great Newton, having surpassed all the ancients, left the moderns without any hope of equalling him; for what man will enter the lists who de-spairs of victory?

The useful have in all ages paved the way for the fine arts. Men upon whom the former had bestowed every convenience turned their thoughts to the latter. Beauty was studied in objects of sight; and men of taste attached themselves to the fine arts, which multiplied their enjoyments and improved their benevolence. Sculpture and painting made an early figure in Greece; which afforded plenty of beautiful originals to be copied in these imitative arts. Statuary, a more simple imitation than painting, was sooner brought to perfection: the statue of Jupiter by Phidias, and of Juno by Polycletes, though the admiration of all the world, were executed long before the art of light and shade was known. Another cause concurred to advance statuary before painting in Greece, viz. a great demand for statues of their gods. Architecture, as a fine art, made a slower progress. Proportions upon which its elegance chiefly depends, cannot be accurately ascertained, but by an infinity of trials in great buildings; a model cannot be relied on: for a large and small building, even of the same form, require differ-ent proportions. Literature as a branch of the fine arts deserves a separate consideration. See LITERATURE.

The cause of the decline of the fine arts may be illustrated by various instances. The perfec-tion of vocal music is to accompany passion, and to enforce sentiment. In ancient Greece, the province of music was well understood; and being confined within its proper sphere, it had an enchanting influence. Harmony at that time was very little cultivated, because it was of very little use; melody reaches the heart, and it is by it chiefly that a sentiment is enforced, or a pas-sion soothed: harmony, on the contrary, reaches the ear only; and it is a matter of undoubted experience, that the melodious airs admit but of very simple harmony. Artists, in later times, ignorant why harmony was so little regarded by

the ancients, applied themselves seriously to its cultivation, and have been wonderfully successful. But successful at the expense of melody; which, in modern compositions, generally speaking, is lost amid the blaze of harmony. In the Italian opera, the mistress is degraded to be handmaid; and harmony triumphs, with very little regard to sentiment. Among the Greeks also, as a conquered people, the fine arts decayed; but not so rapidly as at Rome under her various despotic emperors; the Greeks farther removed from the seat of government, being less within the reach of the Roman tyrants. During their depression they were guilty of the most puerile conceits; witness verses composed in the form of an axe, an egg, wings, and such like. The style of Greek authors, in the reign of Adrian, is unequal, obscure, stiff, and affected. Lucian is the only exception. We need scarce any other cause but despotism, to account for the decline of statuary and painting in Greece. These arts had arrived at their utmost perfection about the time of Alexander the Great; and from that time they declined gradually with the vigor of a free people; for Greece was now enslaved by the Macedonian power. It may in general be observed, that when a nation becomes stationary in that degree of power which it acquires from its constitution and situation, the national spirit subsides, and men of talents become rare. It is still worse with a nation that is sunk below its former power and pre-eminence; and worst of all, when it is reduced to slavery. Other causes concurred to accelerate the downfall of the arts mentioned. Greece, in the days of Alexander, was filled with statues of excellent workmanship; and there being little demand for more, the later statuaries were reduced to make heads and busts. At last the Romans put a total end, both to statuary and painting in Greece, by plundering it of its finest pieces; and the Greeks, exposed to the avarice of the conquerors, bestowed no longer any money on the fine arts. The decline of the fine arts in Rome is, by Petronius Arbiter, a writer of taste and elegance, ascribed to a cause different from any above mentioned, i. e. opulence, with its faithful attendants avarice and luxury. In England the fine arts are far from such perfection as to suffer by opulence. They are in a progress, indeed, towards maturity; but proceed at a very slow pace. Another cause that never fails to undermine a fine art in a country where it is brought to perfection, abstracting from every one of the causes above mentioned, has been already pointed out. Nothing is more fatal to an art or science, than performances so much superior to all of the kind as to extinguish emulation. This cause would have been fatal to the arts of statuary and painting among the Greeks, even though they had continued a free people. The decay of painting in modern Italy is probably owing to this cause: Michael Angelo, Raphael, Titian, &c. are lofty oaks, that bear down young plants in their neighbourhood, and intercept them from the sunshine of emulation. Had the art of painting made a slower progress in Italy, it might have there continued in vigor to this day. Architecture continued longer in vigor than painting, because the principles of comparison in the former art were less precise than in the latter. The artist who could not rival his predecessors in an established mode, sought out a new mode for himself, which, though perhaps less elegant or perfect, was for a time supported by novelty. Useful arts will never be neglected in a country where there is any police; for every man finds his account in them. Fine arts are more precarious. They are not relished but by persons of taste, who are rare; and such as can spare great sums for supporting them, who are still more rare. For that reason they will never flourish in any country, unless patronised by the sovereign, or by men of power and opulence. And richly do they merit such patronage, as one of the springs of government; multiplying amusements, and humanising manners.

ART, the second person singular of the verb TO BE, of which the English language affords no variation, except by adopting the plural, by saying You are, instead of Thou art. Thou beest indeed was anciently used, but it is quite obsolete.

ART and PART in Scots law. See ACCESSARY.

ARTA, or LARTA, a gulf, river, and town of European Turkey, in Albania, or Epirus, belonging to the government of Romania. The town is seated on the river of the same name, nine miles north of the spot where it falls into the gulf of Arta, above twenty miles north-east of Prevesa, and about 360 W. N. W. of Constantinople. The number of inhabitants, Christians as well as Turks, amounts to six thousand, who trade in cattle, wine, tobacco, cotton, flax, pulse, fur, leather, and other commodities. They also manufacture coarse woollen and other cloths. It is the seat of a Greek metropolitan and several European consuls. The gulf, otherwise called the gulf of Prevesa, extends a considerable way inland in an eastern direction, and from its rocks and sand banks, is very dangerous. Long. 21° 8′ E., lat. 39° 30′ N.

ARTABA, an ancient measure of capacity used by the Persians, Medes, and Egyptians.—The Persian artaba is represented by Herodotus as bigger than the Attic medimnus by three Attic chœnixes; from which it appears that it was equal to $6\frac{3}{4}$ Roman modii; consequently that it contained $166\frac{2}{3}$ pounds of wine or water, or $126\frac{2}{3}$ pounds of wheat. The Egyptian artaba contained five Roman modii, and fell short of the Attic medimnus by one modius; consequ ntly held $133\frac{1}{3}$ pounds of water or wine, 100 lb. of wheat, or sixty of flour.

ARTABANUS, the name of several kings of Parthia. See PARTHIA.

ARTABANUS, the brother of Darius I. and the uncle and murderer of Xerxes. See ARTAXERXES.

ARTABAZUS, the son of Pharnaces, commanded the Parthians and Chorasmians in the famous expedition of Xerxes. After the battle of Salamis, he escorted the king his master to the Hellespont with 60,000 chosen men; and after the battle of Platæa, in which Mardonius engaged contrary to his advice, he made a noble retreat, and returned to Asia with 40,000 men.

ARTAKI, a town of Asiatic Turkey, in Na-

tolia, on the south coast of the sea of Marmora, forty-five miles east of Gallipoli and ninety south-west of Constantinople. Long. 27° 39′ E., lat. 40° 18′ N.

Artakui, a town of European Turkey, in Romania, forty-eight miles north-west of Gallipoli.

ARTALIS (Joseph), a native of Mazara, A. D. 1628, who showed an early inclination both for poetry and arms. He finished his studies at fifteen years of age, when he fought a duel and killed his adversary. He took shelter in a church and afterwards studied philosophy. Candia being besieged by the Turks, he went to its relief, and displayed so much valor that he was created a knight of St. George. Being afterwards engaged in several rencounters and always victorious, he got the title of Chevalier de Sang, or the knight of blood. His literary talents obtained him the honor of being elected a member of several academies in Italy, and his military abilites procured him the favor of several princes, particularly of the Emperor Leopold I. and Ernest duke of Brunswick.

ARTAXATA, an ancient city, the metropolis of Armenia Major, and the residence of the Armenian kings: it was built according to a plan of Hannibal, for king Artaxias; and was situated on a branch of the river Araxes, which formed a kind of peninsula, and surrounded the town like a wall, except on the side of the isthmus, but this side was secured by a rampart and ditch. The town was deemed so strong that Lucullus, after having defeated Tigranes, durst not lay siege to it; but Pompey compelled him to deliver it without striking a blow. It was then levelled with the ground; but the Armenians have a tradltion, that the ruins of it are still to be seen at a place called Ardachat. Sir John Chardin says, that it has the name of Ardachat, from Artaxias, whom in the east they call Ardechier. Here are the remains of a stately palace, which the Armenians take to be that of Tiridates, who reigned in the time of Constantine. One front of this building is half ruined, and there are many other fine antiquities.

Artaxata, or Atropatia, another city built also on the Araxes, in the northern part of Media.

ARTAXERXES I. king of Persia, surnamed Longimanus, from the uncommon length of his arms, was the youngest son of Xerxes, and was raised to the throne A. M. 3487, by Artabanus, the captain of the guards, who had privately murdered his father; but persuaded the young prince that his elder brother Darius had done it; whereupon, assisted by the guards, he killed Darius in his bed-chamber. But the murder and treason being afterwards discovered, Artabanus suffered the punishment he merited. Some reckon this king the Ahasuerus who married Esther; but, be that as it may, it is certain that he greatly favored the Jews, by not only authorising them to return to Judea, and rebuild Jerusalem, but also to collect money for the use of their temple; as well as by remitting their tribute, by encouraging their worship, and by making them a number of valuable presents, &c. See his letter to Ezra, chapter vii, 10—26. For an account of the other transactions of his reign, see Persia. He reigned about forty years, and died A. A. C. 447.

Artaxerxes II. surnamed Mnemon, from his great memory, succeeded his father Darius II. A. M. 3546, but had to contend for his kingdom with his younger brother Cyrus, who was assisted by the Greeks, but was at last overcome and slain. It was after this battle that Xenophon displayed his generalship by his memorable retreat with his army. Artaxerxes reigned forty-three years, and died A. M. 3589. See Persia.

Artaxerxes is also the name given in Scripture to, and probably assumed by, the impostor Oropastes; who, pretending to be Smerdis the son of Cyrus, reigned five months in Persia, after the death of Cambyses. During his short reign, the enemies of the Jews applied for, and obtained, an interdict of the rebuilding of the city and temple. See Ezra iv. 7.

ARTAXIAS, the founder of the kingdom of Armenia Major. See Armenia and Artaxata.

ARTEDI (Peter), a famous Swedish naturalist, born in 1705. He was educated at the university of Upsal, where he studied medicine; but his time was chiefly dedicated to ichthyology, in which he made many valuable discoveries.—Such was the friendship between him and Linnæus, that the longest liver was to be heir of all their MSS. He was drowned at Leyden in 1735. His Bibliotheca Ichthyologica and Philosophia Ichthyologica, were published by Linnæus in 1738.

ARTEDIA, in botany, a genus of the digynia order, and pentandria class of plants; ranking in the natural method, under the forty-fifth order, umbellatæ. The involucra are pinnatifid; the floscules of the disc are masculine; and the fruit is hispid with scales. The principal species is, viz. A. squamata, with squamose seeds, a native of the east. Rauwolf found it growing on mount Libanus. It is an annual plant, whose stalks rise about two feet high, sending out a few side branches, garnished with narrow compound leaves resembling those of dill.

ARTEMIDORUS, a Grecian teacher in Rome, who being intimate with Brutus, and learning from him of the intended assassination of Cæsar, delivered a note to him to inform him of it, as he went to the senate-house, and desired him to read it immediately, which Cæsar neglecting, fell a sacrifice to the plot.

Artemidorus, an ancient author, under Antoninus Pius, famous for his Treatise on Dreams, which was first printed in Greek at Venice in 1518. Rigaltius published an edition at Paris in Greek and Latin in 1603, and added some notes. Artemidorus wrote also treatises upon Auguries and Chiromancy; which are not extant.

ARTEMISIA I. queen of Caria, and the daughter of Ligdamis, marched in person in the expedition of Xerxes against the Greeks, and performed wonders in the sea-fight near Salamis, A. A. C. 480. Being pursued by an Athenian vessel, she attacked one of the Persian ships, commanded by the king of Calyndus, and sunk it; on which the Athenians, thinking that her ship was on the side of the Greeks, ceased their pursuit; but Xerxes was the principal person

imposed upon in this affair; for believing that she had sunk an Athenian vessel, he declared that 'the men had behaved like women, and the women like men.' Xerxes entrusted her with the care of the young princes of Persia, his sons, when, agreeably to her advice, he abandoned Greece in order to return to Persia. These great qualities did not secure her from the weakness of love: she was passionately fond of a man of Abydos, whose name was Dardanus, and was so enraged at his neglect of her, that she put out his eyes while he was asleep. Having consulted the Delphian Oracle how to extinguish this passion, and being advised to go to Leucas, which was the usage of desperate lovers, she took the leap from thence, and was drowned, and interred at that place. Many writers confound this princess with the wife of Mausolus.

Artemisia II., queen of Caria, the widow of king Mausolus, has immortalised herself by the honors which she paid to the memory of her husband. She built for him, in Halicarnassus, a very magnificent tomb, called the Mausoleum, which was one of the seven wonders of the world, and from which the title of mausoleum was afterwards given to all tombs remarkable for their grandeur, but died of grief before the mausoleum was finished. She is said to have drank his ashes; and to have offered a prize of great value to the person who should compose the best eulogium on his memory. He died about the end of the 106th Olympiad, A. A. C. 351.

Artemisia, mugwort, southernwood, and wormwood; a genus of the polygamia superflua order, and syngenesia class of plants, ranking in the natural method under the forty-ninth order, compositæ nucamentaceæ. The receptacle is either naked or a little downy; it has no pappus; the calyx is imbricated with roundish scales; and the corolla has no radii. There are twenty-three species, of which the following are the most remarkable: viz.

1. A. abrotanum, or southernwood, which is kept in gardens for the sake of its agreeable scent, a low shrub, seldom rising more than three or four feet high. 2. A. absinthium, or common wormwood, grows naturally in lanes and uncultivated places, and is too well known to require any description. 3. A. arborescens, or tree-wormwood, grows naturally in Italy and the Levant, near the sea. It rises with a woody stalk, six or seven feet high, sending out many ligneous branches, garnished with leaves somewhat like those of the common wormwood, but more finely divided and much whiter. 4. A. dracunculus, or Tarragon, is frequently used in sallads, especially by the French, and is a very hardy plant, spreading greatly by its creeping roots. 5. A. maritima, or sea-wormwood, grows naturally on the sea-coast in most parts of Britain, where there are several varieties to be found. 6. A. Pontica, or Pontic wormwood, commonly called Roman wormwood, is a low herbaceous plant whose stalks die in autumn, and new ones rise up in the spring. The flowers appear in August, but are rarely succeeded by seeds in Britain. 7. A. santonicum, produces the semen santonicum, which is much used for worms in children. It grows naturally in Persia, from whence the seeds are brought to Europe. 9. A. vulgaris, or common mugwort, grows naturally on banks and by the sides of foot-paths in many parts of Britain: in gardens it proves a troublesome weed. The seeds of the santonicum are small, light, chaffy, composed as it were of a number of thin membranous coats of a yellowish color, an unpleasant smell, and a very bitter taste. They are celebrated for anthelmintic virtues, which they have in common with other bitters, and are sometimes taken with this intention, either along with molasses or candied with sugar. They are not often met with genuine in the shops. The leaves of the sea, common, and Roman wormwoods are used as stomachics, but are all very disagreeable: the Roman is the least so and therefore is to be preferred; but the other two kinds are generally substituted in its place. The distilled oil of wormwood is sometimes made use of externally as a cure for worms. The leaves of the vulgaris or common mugwort were commonly celebrated as uterine and antihysteric: an infusion of them is sometimes taken, either alone or in conjunction with other substances, in suppression of the menstrual evacuations. In some parts of this kingdom mugwort is of common use as a potherb. It is now, however, very little employed in medicine; and it is probably with propriety that the London college have rejected it from the Pharmacopœia.

The moxa, so famous in the eastern countries for curing the gout, by burning it on the part affected, is the lanugo or down growing on the under side of the leaves of a species of mugwort, supposed to be the same with our common sort. From some dried samples of this plant which were brought over to this country, Mr. Miller reckons them to be the same, differing only in size. He supposes that the lanugo of our mugwort would be equally efficacious. The abbe Grosier says the ancient Chinese made great use of it in medicine.

Artemisia, yearly festivals anciently observed in divers cities in Greece, particularly Delphi, in honor of Diana Artemis. In the artemisia a mullet was sacrificed to this goddess, as being thought to bear some resemblance to her, because it is said to hunt and kill the sea-hare.

ARTEMISIUM, a promontory on the north-east of Eubœa, (called Leon and Cale Acte by Ptolemy,) memorable for the first sea engagements between the Greeks and Xerxes, of which the following account is given by Gillies: 'The Grecian fleet was stationed in the harbour, while that of the Persians, too numerous for any harbour to contain, had anchored between the city of Castanæa and the promontory of Sepias, on the coast of Thessaly. The first line of their fleet was sheltered by the coast of Thessaly; but the other lines, to the number of seven, rode at anchor, at small intervals, with the prows of the vessels turned to the sea. When they adopted this arrangement the waters were smooth, the sky clear, the weather calm and serene; but on the morning of the second day after their arrival on the coast, the sky began to lower, the appearance of the heavens grew threatening and terrible; a dreadful storm succeeded; raged for three days

with unabating fury, and destroyed 400 galleys, besides a vast number of store-ships and transports. However, 800 ships of war, besides innumerable vessels of burden, sailed into the Pegasean bay and anchored in the road of Aphete, directly opposite to the harbour of Artemisium. The Grecians had posted sentinels on the heights of Eubœa, to observe the consequences of the storm, and to watch the motions of the enemy. When informed of the disaster which had befallen them they poured out a joyful libation, and sacrificed, with pious gratitude, to 'Neptune the Deliverer.' The Persians, however, having recovered from the terrors of the storm, prepared for battle; and, as they entertained not the smallest doubt of conquering, they detached 200 of their best sailing vessels round the isle of Eubœa, to intercept the expected flight of the enemy through the narrow Euripus. About sunset the Grecian fleet approached in a line, and the Persians met them with the confidence of victory, as their ships were still sufficiently numerous to surround those of their opponents. At their first signal the Greeks formed into a circle, at the second they began the fight. Though crowded into a narrow compass, and having the enemy on every side, they soon took thirty of their ships, and sunk many more. Night came on, accompanied with an impetuous storm of rain and thunder; the Greeks retired into the harbour of Artemisium; the enemy were driven to the coast of Thessaly. By good fortune however, rather than by design, the greatest part of the Persian fleet escaped immediate destruction, and gained the Pegasean bay; but the ships ordered to sail round Eubœa met with a more dreadful disaster. They were overtaken by the storm, after they had ventured farther from the shore than was usual with the wary mariners of antiquity. Clouds soon intercepted the stars, by which alone they directed their course; and after continuing during the greatest part of the night the sport of the elements, they all perished miserably amidst the shoals and rocks of an unknown coast. The morning arose with different prospects and hopes to the Persians and Greeks. To the former it discovered the extent of their misfortunes; to the latter it brought a reinforcement of fifty-three Athenian ships. Encouraged by this favorable circumstance, they determined again to attack the enemy at the same hour as on the preceding day, because their knowledge of the coast, and their skill in fighting their ships, rendered the dusk peculiarly propitious to their designs. At the appointed time they sailed towards the road of Aphete; and having cut off the Cilician squadron from the rest, totally destroyed it, and returned at night to Artemisium. The Persian commanders being deeply affected with their repeated disasters, but still more alarmed at the much dreaded resentment of their king, determined to make one vigorous effort for restoring the glory of their arms. By art and stratagem, and under favor of the night, the Greeks had hitherto gained many important advantages. It now belonged to the Persians to choose the time for action. On the third day, at noon, they sailed forth in the form of a crescent, still sufficiently extensive to infold the Grecian line. The Greeks, animated by former success, were averse to decline any offer of battle; yet it is probable that their admirals, and particularly Themistocles, would much rather have delayed it to a more favorable opportunity. Rage and resentment supplied the defect of the barbarians in skill and courage. The battle was longer, and more doubtful, than on any former occasion; many Grecian vessels were destroyed, five were taken by the Egyptians, who particularly signalised themselves on the side of the barbarians, as the Athenians did on that of the Greeks. The persevering valor of the latter at length prevailed, the enemy retiring, and acknowledging their superiority, by leaving them in possession of the dead and the wreck. But the victory cost them dear; since their vessels, particularly those of the Athenians, were reduced to a very shattered condition; and their great inferiority in the number and size of their ships made them feel more sensibly every diminution of strength.'

ARTEMISIUM, a town of Œnotria, now called St. Agatha, in Calabria, on the river Pisaurus, or la Foglia, eight miles distant from the Tuscan sea.

ARTEMISIUM, an ancient town of Spain, on the sea-coast of Valencia, called also Dianium, and now Denia, possessed by the Contestani.

ARTEMON, a Syrian who resembled Antiochus, king of Syria, so exactly, that by the contrivance of his queen Laodice, he personated him after his death, and thus obtained the kingdom.

ARTEMON, the founder of the sect of Artemonites, a sect of Unitarians who flourished about the year 210.

ARTEMUS, a promontory of Valencia, called also Cabo St. Martin, and Punta del' Emperador.

ARTENNA, in ornithology, the name of a water-bird, of the size of a hen, of a brownish color on the back, and white on the belly; having a crooked bill, and its three fore toes connected by a membrane, but the hinder one loose. It is found on the island Tremiti, in the Adriatic sea, and is supposed to be the avis Diomedis of the ancients.

ARTERIA ASPERA, ARTERIA BRONCHIALIS, &c. See ANATOMY, Index.

ARTERIA VENOSA, a name given by the ancients to the pulmonary vein, on the erroneous supposition of its being an air-vessel, and that it served for the conveyance of the vital aura from the lungs to the heart.

ARTERIACA, ARTERIACS. Medicines for disorders of the trachea, and the voice. Arteriacs are reduced by Galen into three kinds: 1. Such as are void of acrimony, serving to mollify the asperities of the part; such as gum tragacanth, aster samias, starch, milk, &c. 2. Those of an acrimonious quality, whereby they stimulate even the sound parts; such as honey, turpentine, bitter almonds, iris root, &c. 3. Those of an intermediate kind, soft and mild, yet detergent; such as butter, and preparations of almonds, honey, &c.

ARTERIOSA VENA, or ARTERIAL VEIN, a denomination given to the pulmonary artery.

ARTERIOSUS CANALIS, a tube in the heart of the fœtus, which, with the foramen ovale, serves to maintain the circulation of the blood, and to divert it from the lungs.

ARTERY, ARTERIAL. Αρτηρια, *spiritus semita*, according to Pliny and Cicero. The moderns have a more accurate knowledge of the human body than this bare and inadequate definition of the ancients affords. See ANATOMY for a complete view of the arteries.

Universal plodding prisons up
The nimble spirits in the *arteries*.
Shakspeare. Love's Labour Lost.

Had not the Maker wrought the springy frame;
The blood, defrauded of its nitrous food,
Had cool'd and languished in the *arterial* road.
Blackmore.

As this mixture of blood and chyle passeth through the *arterial* tube, it is pressed by two contrary forces; that of the heart driving it forward against the sides of the tube; and the elastic force of the air, pressing it on the opposite sides of those air-bladders, along the surface of which this *arterial* tube creeps.
Arbuthnot.

ARTHEL, in law, something cast into a court, in Wales, or its marches, whereby the court is letted or discontinued for the time. The casting of arthel is prohibited, 26 Hen. VIII. cap. 6.

ARTHINGTON (Henry), a fanatical gentleman of Yorkshire, who, towards the end of queen Elizabeth's reign, engaged in treasonable practices against the government, with Edward Coppinger a servant of the queen's, and one Hacket, whom, in their fanaticism they styled 'king of Europe!' Supposing themselves to be inspired, Coppinger styled himself the 'prophet of mercy,' and Arthington the 'prophet of judgment!' Arthington accordingly wrote and published his prophecies, wherein were intermingled some severe reflections against the lords of the privy council, the judges, &c. They were at last all three apprehended in July, 1591; when Coppinger became quite deranged, and never recovered his senses. Hacket was tried, condemned, and executed; and Arthington hearing of this, wrote a submissive letter to the lords of council, which, after some time, procured him the queen's pardon. He died with the character of an honest but weak man.

ARTHRITICA, in botany, a name given by some to the primrose, and by others to the ground pine.

ARTHRITICAL, ARTHRITICK. Αρθριτις, pain or disease which attacks the joints, from αρθρον, a joint.

Frequent changes produce all the *arthritick* diseases.
Arbuthnot.

Serpents, worms, and leaches, though some want bones, and all extended articulations, yet have they *arthritical* analogies; and, by the motion of fibrous and musculous parts, are able to make progression.
Brown's Vulgar Errors.

Unhappy! whom to beds of pain
Arthritic tyranny consigns;
Whom smiling nature courts in vain,
Though rapture sings and beauty shines.
Johnson's Ode on Spring.

ARTHRITIS; from αρθρον, a joint; any distemper that affects the joints, but the gout particularly.

ARTHRITIS PLANETICA, ARTHRITIS VAGA, the wandering gout, that gives pain sometimes in one limb, and sometimes in another.

ARTHRODIA, in anatomy, a species of articulation, wherein the flat head of one bone is received into a shallow socket in the other. The humerus and scapula are joined by this species of articulation. See ANATOMY, Index.

ARTHRODIA, in natural history, a genus of imperfect crystals, found always in complex masses, and forming long single pyramids, with very short and slender columns.

ARTHRODIA, in zoology, a class of animalculæ, containing those with visible limbs.

ARTHRON; αρθρον, Greek; a joint, or connection of bones proper for motion.

ARTHROSIS, in anatomy, a juncture of two bones designed for motion; called also articulation. See ARTHRODIA.

ARTHUR, the celebrated hero of the Britons, is said to have been the son of Uter, named Pendragon, king of Britain, and to have been born in 501. His life is a continued scene of wonders. He killed 470 Saxons with his own hand in one day; and after having subdued many mighty nations, and instituted the order of the knights of the Round Table, died A.D. 542, of wounds which he received in battle. The most particular detail of his story and his exploits is that given by Geoffrey of Monmouth; but his history is so blended with the marvellous and the extravagant, that not only the truth of the whole, but even the reality of Arthur's existence, has been called in question. The ingenious Mr. Whitaker however believes in his institution of the celebrated order of the round table, as also that it was the origin of others of the like kind on the continent.

ARTHUR'S SEAT, a high hill in the neighbourhood of Edinburgh, said to have been so denominated from a tradition that king Arthur surveyed the country from its summit, and had also defeated the Saxons in its neighbourhood. This hill rises by a steep and rugged ascent, till it terminates in a rocky point near 700 feet from the base, being more than double the height of the cross on the top of St. Paul's, London, which is 340 feet. On the south it is in many parts a perpendicular rock, composed of basaltic pillars, regularly pentagonal or hexagonal, about three feet in diameter, and from forty to fifty feet in height. Contiguous upon the west, and partly connected with it at the base, are Salisbury crags, of inferior height but exhibiting an appearance equally singular and grand. They present to the city an awful front of broken rocks and precipices, forming a sort of natural amphitheatre of solid rock; and backward from the craggy verge above, the hill forms an extensive irregular slope, the surface affording pasture to numerous flocks of sheep. The crags, beside ores, spars, rock-plants, and here and there it is said some precious stones, afford an inexhaustible supply of granite for paving the streets, &c. In quarrying a part of the crags has been worn down into a spacious shelf, having the appearance of a lofty terrace, and stretching a considerable length. From hence is a near and distinct prospect of the city with its environs and the adjacent country. But from the pinnacle called Arthur's Seat the view is more noble and extensive. The traveller may here sit and survey at his ease the centre of the kingdom, besides having a complete view of Edinburgh and its castle, on which he looks down as if seated among the

clouds. In a word, the German ocean, the whole course of the Forth, the distant Grampians, and a large portion of the most populous and best cultivated part of Scotland, form a landscape sublime, various and beautiful. The denomination of this hill, derived as above, has been adduced as an argument against those who dispute the existence of the British Arthur. That derivation, however, though probable, is not without uncertainty. For Arthur's Seat is said to be derived, or rather corrupted, from A'rd Seir, 'a place or field of arrows,' where people shot at a mark: and this not improbably; for among these cliffs is a dell or recluse valley, where the wind can scarcely reach, now called the Hunter's bog, the bottom of it being a morass. The adjacent craggs are supposed to have taken their name from the earl of Salisbury, who, in the reign of Edward III. accompanied that prince in an expedition against the Scots; though, according to others, the genuine derivation, like that of Arthur's seat, is from a Celtic word also corrupted.

ARTICHOKE, in botany. See CINARA.

AR'TICLE, *v.* & *n.* } Lat. *articulus*, a diminutive of *artus*, a joint. To enter into, draw up or state particulars, to make terms. To articulate is to pronounce each portion of a sentence distinctly.
ARTI'CULATE, *v.* & *adj.*
ARTI'CULATELY,
ARTICULA'TION.

PROSPERO. Hast thou, spirit,
Performed to point the tempest that I bad thee.

ARIEL. To every *article*. *Shakspeare. Tempest.*

Henry's instructions were extreme curious and *articulate*, and in them more articles touching inquisition, than negotiation; requiring an answer in distinct articles to his questions. *Bacon.*

In speaking under water, when the voice is reduced to an extreme exility, yet the *articulate* sounds, the words, are not confounded. *Id.*

The first, at least, of these I thought deny'd
To beasts; whom God, on their creation day,
Created mute to all *articulate* sound. *Milton.*

Antiquity expressed numbers by the fingers on either hand. On the left they accounted their digits and *articulate* numbers unto an hundred; on the right hand, hundreds and thousands.
Brown's Vulgar Errors.

If it be said, God chose the successor, that is manifestly not so in the story of Jephtha, where he *articled* with the people, and they made him judge over them. *Locke.*

By *articulation* I mean a peculiar motion and figure of some parts belonging to the mouth, between the throat and lips. *Holder.*

All the precepts, promises, and threatenings of the gospel, will rise up in judgment against us; and the *articles* of our faith will be so many *articles* of accusation; and the great weight of our charge will be this, That we did not obey the gospel, which we professed to believe; that we made confession of the Christian faith, but lived like Heathens. *Tillotson.*

You have small reason to repine upon that *article* of life. *Swift.*

The dogmatist knows not by what art he directs his tongue, in *articulating* sounds into voices. *Glanville.*

In the mean time they have ordered the preliminary treaty to be published, with observations on each *article*, in order to quiet the minds of his people.
Steele.

ARTICLE, in grammar, is a particle used in most languages for the declining of nouns, and denoting their several cases and genders. The use of them chiefly arises in languages that have no different terminations to express the different circumstances of nouns. The Latins have no articles; but the Greeks, and most of the modern languages, have had recourse to them for fixing and ascertaining the vague signification of common and appellative names. Many have been the controversies among grammarians upon the use and meaning of these words. Mr. Harris, whose knowledge was derived from the Greek language and Greek grammarians, and whose principles are contradicted by the slightest acquaintance with the Teutonic and Arabic, leads us through many a maze; and we might have wandered till this moment, if Mr. Tooke, in his observations on the word *that*, in his Epea Pteroenta, had not pointed out to us the open and straight road upon this subject. In the English language we call the words *a* and *the* articles; the Germans have *ein* and *der*; the French *un* and *le*; the Greeks ὁ; the Hebrews ה: but the unfortunate Latins are said to be without these joints and pegs in speech. But if one language is without them, they are, it is evident, not essential to language; and it will be found difficult to make such a definition as shall exclude a variety of words, such as *hic*, *this*, *that*, &c. from making a part of this division. In the languages above-mentioned the precise meaning of the words *the*, *der*, *le*, ὁ, and ה, cannot at first sight be ascertained. The English word *a* points obscurely to its meaning, but the German *ein* and the French *un* clear the road for investigation. They are to be found continually applied to substantives, and mean *one*. If a thing is generally reported, we say in English, 'they say,' meaning a great number say so: and so in French it is *on dit*, or *unus dicit*, 'one person says so,' meaning more than one person by an ellipsis very common in that language: in German it is *man sagt*, by man, meaning man in general. We have thus found, that in two languages one of the articles is merely a word of number. Probably it may be so in English; *a* may mean *one*, or it is an abbreviation of *any*. By trying the two senses it is evident that *any* cannot be applied in the room of *a*, but that *one* always can: and hence we might conclude that *a* and *an* are only other words for *one*, and answer to the German *ein*.

The article *the*, as it is called, may not discover itself so easily. Yet let us try the same analogy, for the etymology of it is not ascertained. *The* answers to *der* of the Germans, and *le* of the French: but what is *le*? the *ille* of the Latins; and hence we may reasonably presume that our word *the* is no more an article than *ille*, and in fact that it comes from some adjective of the same signification. Let us try by etymology. In German we have *der*, *die*, *das*; which was anciently *ther*, *thia* (*thio thiu*) *thaz*, and in the plural *thie* (*thier*). This looks very much like our *the*. In the Anglo-Saxon we find *sa*, *seo*, *that*: in Islandic, *sa*, *su*, *that*: in Gothic, *sa*, *so*, *thata*: in Hebrew, זה, זו, זות: etymologists perhaps will not be displeased at our making the words זה and *the* proceed from the same original; and we shall not be afraid of exposing ourselves to the laughter of critics, if we refer the Doric τηνος to the same stock. If we

are right in our conjectures, the word *the* is as much a pronoun as the *ille* of the Latins; but, if persons choose to have a distinct class of words under the name of articles, we may say that the English has two, *a* and *the*, which 'serve to define and ascertain any particular object, so as to distinguish it from the other object of the general class to which it belongs.'

Father Buffier distinguishes a third kind of articles in French, which he calls intermediate or partitive, serving to denote part of the thing expressed by the substantives they are added to; as, *des sçavants ont cru*, 'some learned men have supposed;' I want *de la lumiere*, 'some light.' The use and distinction of the definite and indefinite articles *le* or *la*, and *de* or *du*, make one of the greatest difficulties in the French language; as being entirely arbitrary, and only to be acquired by practice.

The most philosophical and probable account is that which has been so ably illustrated by the learned bishop Middleton; viz. that it is neither more nor less than the demonstrative or relative pronoun, for both were originally the same. The article, together with its adjunct, forms in fact a proposition, in which the participle of existence is either expressed or understood, and which involves a relation to something before said by the speaker, or which is suppposed to pass in the mind of the speaker. Thus, γέρων signifies generally 'old man;' but ὁ γέρων is equivalent to ὅ, γέρων ὢν, where the pronoun ὅ, 'this,' implies that the old man now spoken of has been mentioned before, or that he is in some way or other known to the hearer or the speaker.

Article, Articulus, in anatomy, a joint, or juncture, of two or more bones of the body.

Article, in arithmetic, sometimes signifies the number 10, or any number justly divisible into ten parts, as 20, 30, 40, &c.

Article of Faith is by some defined a point of Christian doctrine, which we are obliged to believe as having been revealed by God himself, and allowed and established as such by the church. The thirty-nine articles were founded, for the most part, upon a body of articles compiled and published in the reign of Edward VI. They were first passed in the convocation, and confirmed by royal authority in 1562. They were afterwards ratified anew in the year 1571, and again by Charles I. The law requires a subscription to these articles of all persons ordained to be deacons or priests, 13 El. cap. 12; of all clergymen inducted to any ecclesiastical living, by the same statute; and of licensed lecturers and curates, 13 El. cap. 12 and 13, and 14 Ch. II. cap. 4; of the heads of colleges, of chancellors, officials and commissaries, and of schoolmasters. By 1 William III. cap. 10. dissenting teachers are to subscribe to all except the thirty-fourth, thirty-fifth, and thirty-sixth, and part of the twentieth, and in the case of Anabaptists, except also part of the twenty-seventh; otherwise they are exempted from the benefits of the act of toleration. See Church of England.

Articles of the Clergy, Articuli cleri, are certain statutes touching persons and causes ecclesiastical, made under Edw. II. and III.

Articles of Lambeth were nine articles on the subject of predestination, and the limitation of saving grace, which were drawn up by archbishop Whitgift, and recommended to the attention of the students of Cambridge, in consequence of some disputes which were raised in the university at that time on the above-mentioned points. They were, however, merely declaratory of the doctrines of the church of England, and were not imposed as of public authority.

Articularis Nervus. See Anatomy, Index.

Articulate Sounds are such as express the letters, syllables, or words, of an alphabet or language: such are formed by the human voice, and by some few birds, as parrots, &c.

Articulated Libel, libellus articulatus, in law, that wherein the parts of a fact are set forth to the judge in short, distinct articles.

Articulation, in anatomy. See Anatomy, Index.

Articulation, in botany, is the connexion of parts that consist of joints or knees, such as the pods of French honey-suckles, which, when ripe, divide into so many parts as there are knees or joints; also those parts of plants which swell into nodes or joints, and which usually send forth branches.

Articulation, in grammar, a distinct pronunciation of words and syllables.

ARTIFICERS, among the Romans, had their peculiar temples, where they assembled and chose their own patron, or advocate, to defend their causes; they were exempted from all personal services. Taruntenus Paternus reckons thirty-two species of artificers, and Constantine thirty-five, who enjoyed this privilege. Artificers were held a degree below merchants, and argentarii or money-changers, and their employment more sordid. Some deny, that in the earliest ages of the Roman state, artificers were ranked in the number of citizens: others, who assert their citizenship, allow that they were held in contempt, as being unfit for war, and so poor that they could scarcely pay any taxes. For which reason they were not entered among the citizens in the censor's books; the design of the census being only to see what number of persons were yearly fit to bear arms, and to pay taxes towards the support of the state. In almost all ages, till the present, and under most forms of government, artificers have been too little respected. By means of the arts, the minds of men are engaged in inventions beneficial to the whole community; and thus prove the grand preservative against that barbarism and brutality, which ever attend indolence and induce stupidity. Ramazini has a treatise on the diseases of artificers.

ARTIFICIAL Day, the time between the sun's rising and setting in any position of the hemisphere.

Artificial Lines, on a sector or scale, are lines so contrived as to represent the logarithmick lines and tangents; which, by the help of the line of numbers, solve, with tolerable exactness, questions in trigonometry, navigation, &c. Chambers

Artificial Music, that which is according to the rules of art; or executed by instruments invented by art. It is also used, in another sense, for some artful contrivance in music; as when a piece is sung in two parts; one of which is by B molle, or flat and the other by B sharp.

ARTILLERY.

ARTIL'LERY. Fr. *artillerie*. Of doubtful origin.

Have I not heard great ordnance in the field?
And heav'n's *artillery* thunder in the skies?
Shakspeare.

I'll to the tower with all the haste I can,
To view th' *artillery* and ammunition. *Id.*

And Jonathan gave his *artillery* unto his lad, and said unto him; Go, carry them unto the city.
1 *Samuel.*

As when two black clouds
With heaven's *artillery* fraught, come rattling on
Over the Caspian, then stand front to front
Hov'ring a space, till winds the signal blow
To join their dark encounter in mid air.
Milton's Paradise Lost, b. ii.

Upon one wing the *artillery* was drawn, being sixteen pieces; every piece having pioneers, to plain the ways. *Hayward.*

He that views a fort to take it,
Plants his *artillery* against the weakest place.
Denham.

ARTILLERY, in its general sense, denotes, 1. The offensive apparatus of war, particularly of the missile kind. Among the French the term was anciently appropriated to archery. In its modern signification it denotes certain fire-arms mounted on carriages and ready for action, with their balls, bombs, grenades, rockets, &c. 2. In a more extensive meaning, it includes the means which facilitate their motion and transport, the vehicles over which they traverse rivers, every thing, in short, necessary to them, or that belongs to a train of artillery. 3. In a sense still more extensive, the word comprehends the men and officers destined for the service of the artillery. 4. By the term artillery is likewise understood the science which the officers of artillery ought to possess.

SECT. I.—OF ANCIENT MISSILES AND MILITARY ENGINES.

The missiles of the ancients were of three kinds, viz. on the principle of the cross-bow, the sling, and the recoil of twisted ropes. The first sent forward darts and sometimes combustible arrows; the second was the balista kind, hereafter described; the third acted like the boy's bone bow, which by means of a wooden lever and a twisted string ejects a plum-stone. Dr. Meyrick has had the good fortune to meet in an ancient manuscript with actual delineations of the leading kinds of these engines used in the middle ages. The balista seems only to have been a large beam, rather crooked, resting at about two-thirds of its length on a forked support; if of three legs, then called trepied. Plate, ANCIENT ARTILLERY, fig. 1. At the long end was a great pear-shaped bag, tied to the beam by a stout rope. At the short end was a large box full of stones. The long end being suddenly released, slung upon the enemy the contents of the bag, through being jerked up by the great weight of the stone box. The onager, fig. 2, threw a like bag of stones, but there was no stone-box, the beam being impelled by its position between twisted ropes inclined to recoil. Besides stones, were also used balls of earth, probably baked pelotes, corrupted into pellets and bullets. It will be sufficient therefore to enumerate shortly the machines, though it is to be recollected, that ancient authors are perpetually confounding the appellations. The arbalist is described in 1342 as a large cross-bow, furnished with a hundred gogions, or balls, and grapple to draw it up.

The *balista* is said to be a Phœnician invention for throwing huge stones, confounded sometimes with the catapult, which threw darts, a Syrian contrivance, conveyed to the Syracusans, whence it was brought into Greece by Philip of Macedon. Accounts of the construction vary, but the cross-bow principle of action seems the most probable. The scorpio was a smaller kind of catapult. In the middle ages, besides the balista, catapult, onager, and scorpion, Grose mentions the mangona, and its diminutive mangonel, similar to the balista. The trebuchet or tripgetis, for throwing stones, which seems to have been the same as the trepied, before mentioned, though Dr. Meyrick says the term trebuchet, appears to imply a military engine, which ejected its ammunition from a trap-door, trebocchetto. The petiary, matafunda, bugles or bibles, couillart, and war-wolf (in one sense) also machines for ejecting stones. The bricolle, carreaux or quarrels, and the espringal, calculated for throwing large darts, called muchettæ; and sometimes viretons, i. e. arrows with the feathers put diagonally so as to occasion them to turn in the air, but it was not limited to darts; for according to Dr. Meyrick, v. ii. p. 53, in 1342 the gates and towers of Norwich were furnished with thirty espringolds for casting great stones, and to every espringold a hundred gogions or balls fastened up in a box, with ropes and other accoutrements belonging to them; which illustrates the construction before given. The robinet and mate-griffon (i. e. destroyer of the Greeks) threw both darts and stones.

The *manu-balista*, or cross bow, supposed to be of Sicilian and Cretan origin, was perhaps the most important machine of this kind, and introduced into Europe by the Crusades. It was known in England, at least for use in the chase, as early as the time of the Conquest. Its application to warlike uses (not its introduction) by Richard I. is well supported; it was used in Italy in 1139. A legionary soldier appears on an ancient seal endeavouring to bend the arcubalist with his foot. Five years earlier, mention is made of turni balisterii, or the arbaleste-a-tour, that drawn up by a turn; and in 1320, of the balista grossa de molinellis, or one wound by a moulinet or windlass, see fig. 6, and the balista grossa de arganellis, i. e. one furnished with tubes for ejecting the Greek fire. The cross-bows used in the reign of Henry VII. were of two kinds; the latch, with its wide and thick bender, for quarrels, and the prodd for bullets. The stock of the former was short and straight,

not much exceeding two feet, and the bow was bent by the windlass or moulinet.

Of the important *battering ram* Pliny and others have made Epeus the inventor, during the siege of Troy; but as it is not mentioned by Homer, nor any Greek writer, Vitruvius and Tertullian more probably assign the invention to Pephasmenon, a Tyrian, in the army of Carthage, during the siege of Cadiz. There were three kinds of rams; one suspended, fig. 5; the second running upon rollers, fig. 3; the third carried by the men who worked it, fig. 5. At Haguenau, and Morviedro, the ancient Saguntum, are the remains of two: one is topped with a strong head of iron, square and of one piece; the other consists of three pieces, has a ram's head, and is similar to one on the arch of Severus. The ram was used in the middle ages; and Sir Christopher Wren, in throwing down old walls, found no machine equal to it, particularly in disjointing the stones. The momentum of one, twenty-eight inches diameter, 180 feet long, with a head of a ton and a half weighed 41,112 lbs. and worked by a thousand men, was about equal to a point-blank shot from a thirty-six pounder.

Hardly, perhaps, to be called artillery, but materially assisting their operations were the ancient *musculus* or *testudo* a covered machine, probably the subsequent sow, a very low shed, long and very sharp roofed; used to advance to the wall, and overturn it by sap. The pluteus, a machine covered with ozier work and hides, running upon three wheels, one in the middle, and two at the extremities. The cat, also a covered shed, occasionally fixed on wheels, and used for protecting soldiers employed in filling up the ditch, preparing the way for the movable tower, mining the wall,&c. Some of these cats had crenelles and chinks, from whence the archers could discharge their arrows. These were called castellated cats; and sometimes under cover of this machine, the beseigers worked a small kind of ram; fig. 4. Dr. Meyrick, from an ancient illumination, has engraved one of these, called the chaschateil or cat castle. It resembles in form a modern four-post bedstead upon wheels. A miner is working under it with a pick-axe. And to the same purpose the vinea, another shed, was applied.

The *belfragium* or *belfroi*, was a tower with stories, moved up to the walls. A cat, made of osier twigs and leather, and covered with planks, was used to protect those who filled up the ditches preparatory to wheeling upon them the belfries; from this use of the cat, was derived the French word eschaufaux, an elevated floor, and subsequently the English word scaffold. Elsewhere Dr. Meyrick says, the catti versatiles, were chats faulx furnished with drawbridges. The chief belfries were called brestachiæ or brestaches. William de Breton says, he caused to be made double brestaches in seven different places. These were wooden castles, very highly fortified, surrounded with double quadrangular fosses, at a proportionate distance from each other, with drawbridges thrown across them, and he had not only these filled with armed men, but the interior surface of each foss, and thus he surrounded the besieged by his works. Such wooden castles were also called bastiles. An interesting print of a movable belfroi is given by Grose. It consists of a ground-floor occupied by a ram, and four upper stories by archers and cross-bowmen; the highest story rose above the walls, and from that directly below, a drawbridge was let down, and rested upon the wall; see our fig. 3. Some of these towers used by the early ancients were of amazing magnitude, being with pyramids twenty, fifteen, or ten stages or floors.

The *prickly* cat, or *felis echinata*, was a beam, bristled with oaken teeth, which, being hung at an embrazure, could be let down upon an enemy. For the same purpose was used the fistuca bellica or war-hammer, fitted with curved nails and hooks, and suspended by a chain, to draw up the enemy from below.

Missive wheels were formed of mill-stones joined by an oaken axis, and let down upon besiegers; missive chariots were rolled down an inclined plane, and retained by chains to discharge hot or cold stones. In the middle age the machines were commonly made upon the spot. Hogsheads full of stones were used in the reign of Edward I. as a protecting rampart to defend the workmen in sieges.

Sect. II.—Of Modern Artillery.

According to Du Cange the word artillery (ars telaria, meaning bows, arrows, and all implements of war,) first occurs in Rymer. Grose is confirmed by Dr. Meyrick in assigning the introduction of it to the fourteenth century.

Cannon called dolia ignivoma, or fire-flashing vessels, in Spain, were known in Italy as early as the year 1351, and were used by our Edward III. They were termed by the French, gunnæ, and appear at first to have been of two kinds—a large one for discharging stones, called a bombard, and a smaller sort for discharging darts or quarrels. In 1377, 1 Richard II. Thomas Norbury was directed to provide from Thomas Restwold of London, two great and two less engines, called cannons, 600 stone shot for the same, and salt-petre, charcoal, and other ammunition, for stores, to be sent to the castle of Bristol. At the first invention of cannon, darts and bolts were shot from them; but, before these, stones were used instead, for, in 1388, a stone bullet, which weighed 195 lbs., was discharged from a bombard called the trevisan.

The *bombard* was so called from the Greek *βομβος*, which expressed the noise it made in the firing. It was a Greek invention, and there is some reason to conceive that gunpowder owed its origin to the same people. At first used only in fire-works amusively, its discovery is involved in obscurity. From a tract on Pyrotechny by Marcus Græcus, Friar Bacon, in 1270, learned that its composition was two pounds of charcoal, one of sulphur, and six of salt-petre, well pulverised and mixed. It was first made in England in the time of Elizabeth. At first it was not corned, but remained in its mealed state. It was then called serpentine powder, Meyrick, v. iii. p. 71. The first bombards were made of bars of iron, strengthened with welded hoops of the

same metal. They were short with large bores, and were made with chambers, in imitation of the tubes which ejected the Greek fire. These chambers consisted of the lower half of the cylinder, the upper being open for the admission of the can, or canister, which held the charge, from whence probably arose the term cannon. One of these may be seen in the tower of London, and there is another at Rhodes of the sixteenth century, on its original carriage, and a stone ball to fire from it. It is nineteen feet in length, two feet eight inches in diameter, its calibre two feet, and its thickness four inches. About half the length is of a less diameter, and in this, as in a chamber, was placed the powder, while the ball was in the larger part. The carriage was made of timber, placed lengthways, and cramped together. These bombards were the only kind of cannon employed in the fourteenth century, and were Grose's howitzer kind, in use before mortars. After this invention of bombs, that of carcases of different kinds soon followed. The former, according to Strada, took place in 1588. Grenades are said to have been first used in 1594 in which year the howitzer was invented by the Germans. The bomb being intended to beat down buildings in its fall, or to break and destroy every thing around it, by the pieces of broken iron scattered in all directions by its explosions, the end proposed by the carcase and grenade was to burn the town by means of fire-balls. The petard for forcing gates was invented in France, a short time before the year 1579, and soon after introduced into England.

The term bombard generally designates battering guns and mortars; but the word is also applied to lighter cannon. Accordingly Dr. Meyrick calls a cannon engraved by Strutt, a bombard on a carriage, light in proportion to the bulk of the piece. Its trail consists of a prolongation of the cascabale, which rests on the ground, a block of wood serving as a quoin for the purpose of depression. Admitting that cannon were not used in the field till the fifteenth century, this gun, for it is very small, is the kind to which Froissart alludes, when he mentions two hundred carts loaded with cannon and artillery; cannonades with bars of iron and quarrels headed with brass, and cannon mounted on walls and battlements. The balls were of stone adapted to the calibre. In 1434 it is said that the English had many kinds of projectiles, 'cannons, culverines, and other vuglaires,' more properly vulgaires, the ordinary kind. The scorpion was another sort. In an illuminated copy of the Roman de la Rose, done at the commencement of the reign of Edward IV. 1461, is the delineation of an iron cannon. The piece is placed in a kind of trough, or bed of wood, which is continued to the earth, not unlike a modern horse-artillery trail. Grose very properly says, that most of the earliest cannons were mere cylinders, fixed on sledges and being often composed of iron bars, iron plates rolled, or even jacked leather hooped, could be fired, because they were loaded by chambers fixed in at the breech. At this time they were generally purchased from abroad; and though Henry VII. and VIII. had Flemish gunners to teach the art, yet they did not understand it upon mathematical principles; and in the sixteenth century the ordnance rarely made more than one discharge, the cavalry being able to charge them before they could load again. Aliens were employed in 1543 in casting great brass ordnance, though one John Owen was said to have so done in 1521. In 1626, 2 Charles I. one Arnold Rotespen had a patent for making guns in a manner before unknown in this kingdom.

Culverines were an early denomination of a species of large cannon; and when the distinction between battering-pieces (all above twelve pounders) and field-pieces commenced, according to Dr. Meyrick, temp. Henry VIII. the appellations were numerous. These names were derived from the tubes which had been used to eject the Greek fire, being fashioned so as to represent the mouths of monsters. The basilisk, the largest, shot stones of 200 pounds weight. It was so denominated from a basilisk sculptured upon it. The shot in this reign consisted of iron, lead, and stone balls; and ladles and sponges were used. Different proportions were given by various nations to pieces of the same denomination; but the following table of Ordnance in the reign of Elizabeth, applies in the main to the times immediately preceding:

Denomination.	Pounders.	In. Bore.
Cannon Royal	66	8½
Cannon	60	8
Cannon Serpentine	53½	7
Bastard Cannon	41	7
Demi-cannon	33	6¾
Cannon Petro'	24	6
Culverin	17½	5½
Basilisk	15	5
Demi-culverin	9½	4
Bastard Culverin	5	4
Sacar	5½	3½
Minion	4	3½
Faulcon	2	2½
Falconet	1½	2
Serpentine	¾	1½
Rabinet	½	½

The change introduced in the military art by the modern artillery, Dr. Smith observes, has enhanced greatly both the expense of exercising and disciplining any particular number of soldiers in time of peace, and that of employing them in time of war. Both their arms and ammunition are become more expensive. A musket is a more expensive machine than a javelin or a bow and arrows; a cannon or a mortar than a balista or a catapulta. The powder which is spent in a modern review, is lost irrecoverably, and occasions a very considerable expense. The javelins and arrows which were thrown or shot in an ancient one, could easily be picked up again, and were besides of very little value. The can-

non and the mortar are not only much dearer, but much heavier machines than the balista or catapulta, and require a greater expense not only to prepare them for the field but to carry them to it. As the superiority of the modern artillery too over that of the ancients is very great, it has become much more difficult, and consequently much more expensive, to fortify a town so as to resist, even for a few weeks, the attack of that superior artillery. In modern war, the great expense of fire-arms gives an evident advantage to the nation which can best afford that expense; and consequently to an opulent and civilised, over a poor and barbarous nation. In ancient times, the opulent and civilised found it difficult to defend themselves against the poor and barbarous nations. In modern times, the poor and barbarous find it difficult to defend themselves against the opulent and civilised. The invention of fire-arms, therefore, an invention, which at first sight appears to be so pernicious, is certainly favorable, both to the permanency and to the extension of civilisation. And, on the whole, the invention of gun-powder and modern artillery may be said to have saved the effusion of human blood. Equestrian engagements (the principles on which cavalry act being nearly the same in every age,) are still similar in circumstances to those which appear so extraordinary in the battles of antiquity.

The present artillery of Great Britain is admitted to be the most perfect force of that description in Europe. It was until recently divided into the artillery of the park, the horse artillery, and the battalion guns, viz. all the light pieces of ordnance attached to regiments of the line. This latter description, however, has been discontinued of late, and brigades of foot and horse now comprehend the whole of our regular artillery.

A brigade of foot artillery has either five medium 12-pounders and a heavy 5½-inch howitzer; five 9-pounders and ditto; five long 6-pounders and ditto; five light 6-pounders and a light 5½-inch howitzer; or six 3-pounders when acting in a mountainous district. In the late war the 9-pounders were more generally used, as best opposed to the 8-pounders of the French army. The guns and howitzers are accompanied by ammunition cars, upon a new principle. To every brigade is a forge cart, a camp equipage waggon, and sparegun carriage, with spare wheels, and tools for a wheeler, collar-maker, and carriage-smith. The proportioning of field and battering ordnance, for foreign service, is a business of great importance, from the knowledge which is requisite to fix upon all the numerous articles to accompany the service, and the method to be pursued in equalising, arranging, and disposing of the guns, ammunition, and stores. No certain criterion can ever be established as to the proportion of artillery to be sent upon any expedition, as it must depend entirely upon the nature of the service; and great changes are generally made to suit the ideas of the officer who is to command the army, and also those of the officer of artillery, who may be selected to accompany it. But two brigades of field artillery to a division of an army consisting of 6000 men, may be considered a good proportion, independent of the reserve park.

A troop of British horse artillery has generally five 6-pounders and one light 5½-inch howitzer. The French have generally 8-pounders and a 6-inch howitzer. Each troop consisting of one captain, one second captain, three subalterns, two staff serjeants, twelve non-commissioned officers, seventy-five gunners, forty-six drivers, six artificers, and one trumpeter, with eighty-six draught horses, and fifty-six riding horses, and six pieces of ordnance, with carriages for the conveyance of ammunition, camp equipage, and stores. Horse artillery was brought into the service of this country by the duke of Richmond in the year 1792. There is a colonel-commandant, two colonels en second, four lieutenant-colonels, and one major, attached to it. The movements of horse artillery are made with great celerity, and it has been found, that they are perfectly adapted to act with cavalry in the field, in their most rapid movements, and are considered as forming an essential addition to the artillery service.

The royal artillery drivers are a corps first formed about twelve years ago, by the duke of Richmond. Previous to the corps being established, the horses and drivers were provided by contract; but, as no reliance could be placed on the service of either men or horses so procured, it was found absolutely necessary to abolish so unmilitary and destructive a plan; and to employ able men well trained to the service. The artillery horses are now kept in the highest condition, the drivers being thoroughly drilled to the manœuvres of artillery, and capable of securing, by rapid movements, advantageous positions in the field. This change arises from the high state of excellence in which the brigades are equipped, and from the artillery men being, in particular cases, mounted upon the cars attending the brigades.

A park of artillery is a sort of movable supernumerary detachment, containing not only light guns, to replace such as may be lost or taken, but 12-pounders, or 18-pounders, with 8 inch howitzers, for the purpose of defending important positions, entrenched posts, &c. breaking down bridges, and conducting sieges. Attached to it also are the reserve officers and men of this service. In expedition service, where disembarkations of artillery take place, the depôt of reserve carriages, ammunition and stores, is usually formed near to the spot where the articles are landed from the ships, and a communication is kept up between the advanced park and the depôt, from whence the articles are forwarded as demanded for the immediate exigencies of the park.

Regiments of artillery are always encamped, half on the right and half on the left of the park The company of bombardiers (when they are formed into companies, which is the case in almost every nation except England) always takes the right of the whole, and the lieutenant colonel's company the left; next to the bombardiers, the colonels, the majors, &c. so that the two youngest are next but one to the centre or park; the two companies next to the park are the miners on the right, and the artificers on the left. In the rear of, and thirty-six feet from, the park, are encamped the civil list, all in one line.

The following Tables exhibit the latest official regulations for the proportion and disposition of the ammunition attached to the field-pieces of our army.

TABLE I.

Heavy 5½ Inch Howitzer.

Description of carriage.	Where carried.		Round Shot.	Case Shot.			Total Shot.	Cartridges.		
				Heavy.	Light.	Spherical.		2-lb.	10 ozs.	6 ozs.
Patent limber.	Howitzer limber	Off Box	8	2	—	—	10	10	8	—
		Near Box	8	2	—	—	10	10	8	—
	Ammun. Carriage. Limber	Off Box	11	—	—	—	11	11	11	—
		Near Box	11	—	—	—	11	11	11	—
	Ammun. Carriage. Body.	Fore Box	10	2	4	2	18	18	10	4
		Hind Box	10	2	4	2	18	18	10	4
	Total		58	8	8	4	78	78	58	8
Light 5½ Inch Howitzer.										
Patent limber.	Howitzer limber	Off Box	8	2	—	—	10	10*	8	—
		Near Box	8	2	—	—	10	10	8	—
	Ammun. Carriage. Limber	Off Box	11	—	—	—	11	11	11	—
		Near Box	11	—	—	—	11	11	11	—
	Ammun. Carriage. Body.	Fore Box	12	3	4	2	21	21	12	4
		Hind Box	12	3	4	2	21	21	12	4
	Total		62	10	8	4	84	84	62	8

* These are only 1-lb cartridges.

TABLE II.

Heavy Six-Pounder.

Description of carriage.	Where carried.		Round Shot.	Case Shot.			Total Shot.	Cartridges.		
				Heavy.	Light.	Spherical.		2-lbs.	12 ozs.	2½ ozs.
Patent limber.	Gun limber.	Off Box	20	5	—	—	25	25	—	—
		Near Box	20	—	5	—	25	25	—	—
	Ammun. Carriage. Limber	Off Box	20	5	—	—	25	25	—	—
		Near Box	20	—	5	—	25	25	—	—
	Ammun. Carriage. Body.	Fore Box	25	5	5	10	45	35	10	10
		Hind Box	35	—	—	10	45	35	10	10
	Total		140	15	15	20	190	170	20	20
	Total for five guns		700	75	75	100	950	850	100	100

Light Six-Pounder.

Patent limber.	Gun.	Box	8	—	—	—	8	—*	—	—
	Ammun. Carriage. Limber	Off Box	16	5	—	—	21	25	—	—
		Near Box	16	—	5	—	21	25	—	—
		Off Box	16	4	—	—	20	20	—	—
		Near Box	16	—	4	—	20	20	—	—
	Ammun. Carriage. Body.	Fore Box	25	5	5	10	45	35	10	10
		Hind Box	35	—	—	10	45	35	10	10
	Total		132	14	14	20	180	160	20	20
	Total for five guns		660	70	70	100	900	800	100	100

* These are only 1½-lb. cartridges.

TABLE III.

Nine-pounder.

Description of carriage.	Where carried	Round shot.	Case Shot.			Total shot.	Cartridges.		
			Heavy.	Light.	Spherical.		3-lbs.	14 ozs.	3½ ozs.
New patent limber.	Gun Limber . . Off Box	13	3	—	—	16	16	—	—
	Gun Limber . . Near Box	13	—	3	—	16	16	—	—
	Ammun. Carriage Limber . . Off Box	13	3	—	—	16	16	—	—
	Ammun. Carriage Limber . . Near Box	13	—	3	—	16	16	—	—
	Ammun. Carriage Body . . Fore Box	12	2	2	12	28	16	12	12
	Ammun. Carriage Body . . Hind Box	24	—	—	—	24	24	—	—
	Total	88	8	8	12	116	104	12	12
	Total for five guns	440	40	40	60	580	520	60	60
Two-wheel Carriage.	Gun limber, two boxes	26	3	3	—	32	32	—	—
	Amunition Carriage	52	5	5	10	72	62	10	10
	Total	78	8	8	10	104	94	10	10
	Total for five guns	390	40	40	50	520	470	50	50

TABLE IV.

Medium Twelve-Pounder.

Nature of Limber.	Where carried.	Round shot.	Case shot.			Total shot.	Cartridges.		
			Heavy.	Light.	Spherical		4-lb.	1-lb.	4½ ozs.
New patent.	Gun Limber . . . Off Box	5	1	—	—	6	6	—	—
	Gun Limber . . . Near Box	5	—	1	—	6	6	—	—
	Ammun. Carriage. Limber . . Off Box	12	—	4	—	16	16	—	—
	Ammun. Carriage. Limber . . Near Box	12	4	—	—	16	16	—	—
	Ammun. Carriage. Body . . . Fore Box	12	—	—	8	20	12	8	8
	Ammun. Carriage. Body . . . Hind Box	16	2	2	—	20	20	—	—
	Total	62	7	7	8	84	76	8	8
	Total for five guns	310	35	35	40	420	380	40	40
One box on ammunition carriage.	Gun Limber . . . Off Box	5	1	—	—	6	6	—	—
	Gun Limber . . . Near Box	5	—	1	—	6	6	—	—
	Ammun. Carriage. Limber Box	22	2	2	6	32	26	6	6
	Ammun. Carriage. Body . . . Fore Box	13	2	2	—	17	17	—	—
	Ammun. Carriage. Body . . . Hind Box	13	2	2	—	17	17	—	—
	Total	58	7	7	6	78	72	6	6
	Total for five guns	290	35	35	30	390	360	30	30

ARTISCUS; from αρτος, bread; in medicine, denotes a troche, more particularly that prepared with vipers flesh mixed up with bread, to be used in the composition of Venice treacle.

ARTIST. See ART.

An ARTIST has more correctly been defined one who practises any of the liberal arts as a profession, in distinction from the artisan who mixes them with trade and commerce. The builder, it is said, should not be called an architect, nor should the sign-painter, the figure-caster, or plasterer, the chair-sculptor, commonly called cabinet-maker, the paper-hanger, or wall-decorator, be called artists, because their employments do not consist in the exercise of the higher faculties of the mind, but in practising lower departments of art, or in executing the thoughts and designs of others. We are told of a privilege granted at Vicenza to artists, something like the benefit of clergy in England, in virtue whereof a criminal adjudged to death saves his life if he can prove himself the most consummate workman in any useful art. This plea is allowed them, in favorem artis, for the first offence; except in some particular crimes, of which coining is one; for here the greater the artist the more dangerous the person.

ARTIZOOS; from αρτι short, and ζωη, life; is used by some ancient physicians for an infant short-lived by reason of a difficult birth.

ARTOBRIGA, an ancient town of Vindelicia, now called Altzburg, in Bavaria, on the Danube, below Ingolstadt, according to Aventinus; but Cluverius supposes it to be Labenau on the Saltzbach, below Lauffen, in the archbishopric of Saltsburg.

ARTOCARPUS; from αρτος, bread, and καρπος, fruit; the bread-fruit tree; a genus of the monandria order and monœcia class; natural order, urticæ. It has a cylindric amentum, thickens gradually, and is covered with flowers: the male and female in a different amentum. In the male, CAL. none; COR. bivalved. In the female no calyx nor corolla; stylus, one, and the drupa is many celled. The species are, artocarpus incisa, sitodium incisum, radermachia incisa, soccus lanosus, seu granosus, in French le rima, ou fruit à pain, bread-fruit tree, native of the Molucca Islands. Artocarpus integrifolia, sitodium macrocarpon, seu cauliflorum, radermachia integra, soccus arboreus, seu tojacca-marum Indica, Indian jaca tree, a shrub, native of the East Indies. Artocarpus Philippensis, a shrub, native of the Phillippine Islands. Artocarpus pubescens, ansjeli, seu castania malabarica, a shrub, native of Malabar. Though this tree has been mentioned by many voyagers, particularly by Dampier, Rumphius, and Lord Anson, yet very little notice seems to have been taken of it till the return of Captain Wallis from the South Seas. Dampier states that in Guam, one of the Ladrone islands, 'there is a certain fruit called the bread-fruit, growing on a tree as big as our large apple-trees, with dark leaves. It is round, and grows on the boughs like apples, of the bigness of a good penny loaf: when ripe it turns yellow, soft, and sweet, but the natives take it green, and bake it in an oven till the rind is black; this they scrape off and eat the inside, which is soft and white, like the inside of new-baked bread, having neither seed nor stone; but if kept above twenty-four hours it is harsh. As this fruit is in season eight months in the year, the natives feed upon no other sort of bread during that time.' Rumphius says, 'the fruit is shaped like a heart, and increases to the size of a child's head. Its surface or rind is thick, green, and covered everywhere with warts of a quadragonal or hexagonal figure, like cut diamonds, but without points. The more flat and smooth these warts are the fewer seeds are contained in the fruit, and the greater is the quantity of pith, and that of a more glutinous nature. The internal part of the rind, or peel, consists of a fleshy substance, full of twisted fibres, which have the appearance of fine wool; these adhere to and in some measure form it. The fleshy part becomes softer towards the middle, where there is a small cavity formed without any nuts or seeds, except in one species which has but a small number, and this sort is not good unless it is baked or prepared some other way; but if the outward rind be taken off, and the fibrous flesh dried and afterwards boiled with meat as we do cabbage, it has then the taste of artichoke bottoms. The inhabitants of Amboyna dress it in the liquor of cocoa-nuts, but they prefer it roasted on coals till the outward part or peel is burnt. They afterwards cut it into pieces and eat it with the milk of the cocoa-nut. Some people make fritters of it, or fry it in oil; and others, as the Sumatrans, dry the internal soft part, and keep it to use, instead of bread, with other food. It affords a great deal of nourishment, and is very satisfying, therefore proper for hard-working people; and being of a gentle astringent quality is good for persons of a laxative habit of body. It is more nourishing boiled in our manner with fat meat, than roasted on coals. The milky juice which distils from the trunk, boiled with the cocoa-nut oil, makes a very strong bird-lime. This tree is to be found on the eastern parts of Sumatra, and in the Malay language is called soccus and soccum capas. It grows likewise about the town of Bantam in Java, and in Balega and Madura.'

In 1791 a vessel was fitted out for the purpose of conveying a quantity of these inestimable trees to various parts of his majesty's colonies, under the command of Captain Bligh, who set sail on the 2d of August, and arrived at Otaheite April 8, 1792. The number of plants taken on board at Otaheite was 2634, in 1281 pots, tubs, and cases; and of these 1151 were bread-fruit trees. When they arrived at Coupang 200 plants were dead; but the rest were in good order. They arrived at St. Helena with 830 fine bread-fruit trees, besides other plants. Here they left some of them, and from hence the East Indies may be supplied with them. On their arrival at St. Vincent's they had 678 bread-fruit trees. Nearly half this cargo was deposited here for the use of the Windward Islands; and the remainder, intended for the Leeward Islands, was conveyed to Jamaica, and distributed as the governor and council of Jamaica pleased to direct. The exact number of bread-fruit trees brought to Jamaica was 352, out of which five only were

reserved for the botanic garden at Kew. There is a distinction between that which bears fruit with stones or seeds, and that in which the fruit has none. The parts of fructification of that tree which bears the fruit without stones are defective. The amentum, or catkin, which contains the male parts, never expands. The styli, or female parts of the fruit, are likewise deficient: from which it follows that there can be no stones or seeds, and therefore this tree can only be propagated by suckers or layers; although it is abundantly evident that it must originally have proceeded from the seed-bearing bread-fruit tree. Instances of this kind we sometimes find in European fruit, such as the barberry and the Corinthian grape from Zant, commonly called currants, which can therefore be increased only by layers and cuttings. Dr. Solander was assured by the oldest inhabitants of Otaheite, and the adjoining islands, that they well remembered there was formerly plenty of the seed-bearing bread-fruit; but they had been neglected on account of the preference given to the bread-fruit without seed, which they propagate by suckers.

ARTOIS, a ci-devant province of France, extremely fertile, and formerly one of the seventeen provinces of the Netherlands. The name was derived from the Atrebates, the ancient inhabitants. Its greatest length from north to south was about twenty-four leagues, and its breadth about twelve, being bounded on the south and west by Picardy; on the east by Hainault; and on the north by Flanders. It is now included in the department of the Straits of Calais. Artois was always accounted a very productive province. It is rich in corn and hops, but is deficient in wood, and yields little wine or fruit. The chief articles of export are grain, flax, hops, wool, oil, cabbage, and rape-seed.

ARTOMELI; from αρτος, bread, and μελι, honey; in ancient pharmacy, a kind of cataplasm, prepared of bread and honey.

ARTOTYRITES; from αρτος and τυρος, cheese; a branch of the ancient Montanists, who first appeared in the second century in Galatia. They used bread and cheese in the Eucharist, or perhaps bread baked with cheese. Their reason was, that the first men offered to God not only the fruits of the earth, but of their flocks too. The artotyrites admitted women to the priesthood, and even to be bishops; and Epiphanius informs us, that it was a common thing to see seven girls at once enter into their church robed in white, and holding torches in their hands; where they wept and bewailed the wretchedness of human nature, and the miseries of this life.

ARTZEN, a market-town and bailiwic of Calenberg, in the principality of Hanover, between the Homme and Weser. To the bailiwic belong twenty-two villages and the castle of Furstenberg, formerly the property of the count of Oberstein. This town is the seat of an ecclesiastical superintendant.

ARVAD, or ARADUS, an ancient city of Phœnicia, built on a small island, south of Tyre, about three miles from the continent. It was formerly famous for commerce and riches, and shared the fate of Tyre. It is now called Ruwadde, and belongs to the Turks. It is quite ruinous, having only an old fort and a few cannon to defend it; but the height of the island gives it a fine appearance from a distance.

ARVAL, a town of Hindostan, in the district and province of Bahar, forty miles south-west of Patna.

ARVALES FRATRES, in Roman antiquity, a college of twelve priests, instituted by Romulus, and chosen out of the most noble families, himself being one of the body: they assisted in the sacrifices of the ambervalia, annually offered to Ceres and Bacchus for the prosperity of the fruits of the earth, when they wore on their heads crowns made of ears of corn. The origin of this institution was as follows: Acca Laurentia, Romulus' nurse, was accustomed once a year to make a solemn sacrifice for a blessing on the fields, her twelve sons always assisting her in the solemnity; but at last losing one of them, Romulus offered himself to supply his place, and gave this small society the name of Arvales fratres. This order was in great repute at Rome; they held the dignity for life, and never lost it on account of imprisonment or banishment.

ARUANUS, in conchology, a species of murex, found on the coast of New Guinea. The tail is patulous; the spire crowned with spines. This is the buccinum aruanum of Rumphius.

ARVENSIS, in entomology, a species of curculio; gray, with three lines on the thorax; the wing-cases rufous, and tessalated. Also a species of cicada, a native of Denmark: yellow; abdomen and sides black. A species of phalæna; the phalæna noctua of Linnæus. The wings are brown, with a transverse yellow spot in the middle; margin brown. This is the noctua brunnea of Schmetterl. Also a species of Vespa, found in Europe, with four yellow bands on the abdomen.

ARVERNI, a brave and ancient people; one of the most powerful nations of Gaul They claimed affinity with the Romans, as descendants from Antenor; and after their subjugation by the latter, their ancient liberty was preserved to them on account of their bravery.

ARVICOLA, in entomology, a species of scarabæus, found in Russia: the shield of the head reflected; the body black.

ARVIRAGUS, the son of Cunobelin, a British king, in the time of Claudius and Domitian.

ARUM, or WAKE-ROBIN, in botany, a genus of plants of the class monœcia; order, polyandria. There are several species, of which the following are the most remarkable. The generic characters are CAL. spathe, one-leaved: COR. none: STAM. filaments, none; anthers, sessile: PIST. germ, obovate; style, none; stigma, bearded: PER. berry, globular; seeds, several. A. arborescens, or dumb cane, is a native of the sugar islands and warm parts of America, where it grows chiefly on low grounds. A. arisarium as well as the A. proboscidium and A. tenuifolium have usually been separated from this genus, and distinguished by the general name of arilarum, or friar's cowl: the flower bears in April. A. colocasia, as well as the A. divaricatum, esculentum, peregrinum, and sagittifolium, have all mild roots, which are eaten by the inhabitants of hot countries, where they grow naturally. A. dracunculus, or the common dragon's cane, grows naturally in most of the southern parts of Europe. A. Italicum, a native of Italy, Spain,

and Portugal: they appear in the end of April or beginning of May. A. maculatum, or common wake-robin, grows naturally in woods and on shady banks in most parts of Britain: the flowers appear in April, and their structure has given rise to many disputes among the botanists. The receptacle is long, in the shape of a club, with the seed-buds surrounding its base. The chives are fixed to the receptacle amongst the seed-buds fixed to the fruit-stalk, and placed between two rows of tendrils, the use of which is not known. A. trilobatum, or arum of Ceylon, is a native of that island and some other parts of India. All the species of this plant are hardy, except the trilobatum and the arborescens. The former must be kept constantly in a stove, and the latter in a moderate hot-bed. The arborescens is propagated by cutting off the stalks into lengths of three or four joints, which must be left to dry six weeks or two months; for if the wounded part is not perfectly healed over before the cuttings are planted, they will rot and decay. They are then to be planted in small pots filled with light sandy earth, and plunged in a moderate hot-bed of tan, observing to let them have little water till they have taken good root. The roots of the maculatum and dracunculus are used in medicine, and differ in nothing but that the latter is somewhat stronger than the former. All the parts of the arum, particularly the root, have an extremely pungent acrimonious taste; but if dried and kept some time, it loses much of its acrimony, and becomes at length an almost insipid, farinaceous substance. This root is a powerful stimulant and attenuant. It is reckoned a medicine of great efficacy in some cachectic and chlorotic cases, in weakness of the stomach occasioned by a load of viscid phlegm. Great benefit has been obtained from it in rheumatic pains, in which it may be given from ten grains to a scruple of the fresh root twice or thrice a-day, made into a bolus or emulsion with unctuous and mucilaginous substances, which cover its pungency, and prevent its making any painful impression on the tongue. It generally excites a slight tingling sensation through the whole habit, and when the patient is kept warm in bed, produces a copious sweat. The arum was formerly an ingredient in an officinal preparation, the compound powder; but in that form its virtues are very precarious. Some recommend a tincture of it drawn with wine; but neither wine, water nor spirits, extract its virtues.

ARUNCI, in entomology, a species of Cicada of a ferruginous color and brown eyes.

ARUNCO, in zoology, a species of rana, or toad, larger than the common frog, but of the same color. It is found in Chili. All the feet are palmated.

ARUNCUS, Greater Meadow-sweet, in botany, a genus of plants, called by Tournefort and others barra capræ, and by Linnæus spiræa. This plant has been supposed to be of the same genus with the filipendula, but, by the examination of the flowers, they appear to be extremely different.

ARUNDA, a town of Hispania Bætica, on the Annas, or Guadiana, now said to be Ronda in Granada, on the confines of Andalusia. Long. 5° 40′ W., lat. 36° 26′ N.

ARUNDEL, an ancient borough and market town of Sussex, seated on the north-west side of the Arun, over which there is a bridge. It had a harbour in which a ship of 100 tons burden might ride; but the sea had ruined it so far, that in 1733 an act passed for repairing it, and for erecting new piers, locks, &c. The river is now navigable for vessels of 200 tons and upwards, and the navigation is carried on to the Thames by means of a canal. It abounds in mullet of a very fine quality. A considerable trade in bark is carried on here. Arundel is a borough by prescription, and has sent two members to parliament from the time of Edward I. It is mentioned in the will of Alfred, who left the castle to his brother's son. It was formerly a place of great strength, and was besieged by Henry I. in person, by whom it was taken after a gallant resistance from Bellesone de Montgomery earl of Arundel. The castle, which belonged to the family of Howard, was until lately in a mouldering condition; but completely repaired by the late Duke of Norfolk, at a great expense. A weekly market is held here on Thursday. Population 2700. Arundel is the premier earldom in England, belonging to the illustrious family of Norfolk; and is the only title in England that goes along with the lands. It is fifty-seven miles south-west by south of London, and ten east of Chichester.

Arundel Oil, in the materia medica. At Bombay, Gambroon, and Surat in the East Indies, there grows a tree which bears a nut enclosed in a rough husk, resembling the horse chestnut; and the kernel of the nut yields an oil by expression, which is of a purgative nature A tea-spoonful of it is reckoned a dose. The tree is called, the Arundel tree at Bombay and its oil the Arundel oil. Dr. Monro thinks it probable that this is the oil of the purging nuts mentioned in Dale's pharmacologia, and the palma Christi Indica of Tournefort.

Arundel (Thomas), archbishop of Canterbury in the reigns of Richard II. Henry IV. and Henry V., the second son of Robert, and brother of Richard earl of Arundel, who was beheaded. In 1375, at twenty-two years of age, from being archdeacon of Taunton he was raised to the bishopric of Ely. He was a great benefactor to the church and palace of this see. In 1386 he was appointed lord chancellor of England, and in 1388 translated to the archiepiscopal see of York; and in 1396 to that of Canterbury, when he resigned the chancellorship. This was the first instance of the translation of an archbishop of York to the see of Canterbury. Scarcely was he fixed in this see, when he had a contest with the university of Oxford about the right of visitation. The affair was referred to king Richard, who determined it in favor of the archbishop. At his visitation in London he revived an old constitution, by which the inhabitants of the respective parishes were obliged to pay to their rector one half-penny in the pound out of the rent of their houses. In 1398 the house of commons impeached him, together with his brother the Earl of Arundel, and the Duke of Gloucester, of high treason. The archbishop was sentenced to be banished, and within forty days to depart the kingdom on pain of death. He

retired first to France; and then to the court of Rome, where Pope Boniface IX. gave him a kind reception. About this time the duke of Lancaster, afterwards Henry IV. was in France, having also been banished by king Richard. The nobility and others, tired with the oppressions of Richard, solicited the duke to take the crown; sending over their request in a letter to archbishop Arundel, desiring him to be their advocate on this occasion with the duke. The archbishop accordingly accompanied the messengers to the duke at Paris, and of course the inviting offer, after some objections easily obviated, the duke accepted. Arundel returned with him to England, and was restored to his see. In the first year of this prince's reign, the archbishop summoned a synod which sat at St. Paul's. The next year we find him again in dispute with the commons, who moved that the revenues of the church might be applied to the service of the public: but Arundel opposed the motion with such vigor that it was negatived. In 1408 Arundel began to exert himself against the Lollards, or Wicliffites, particularly against the celebrated Sir John Oldcastle, Lord Cobham. He also procured a synodical constitution, which forbade the translation of the Scriptures into the vulgar tongue. He died at Canterbury in 1413, of an inflammation in his throat, with which he was first seized, it is said, whilst pronouncing sentence upon Lord Cobham. The Lollards asserted this to be a judgment from God; and Bishop Goodwin speaks in the same manner. 'He who had withheld,' says he, 'from the people the word of God, the food of the soul, by the just judgment of God had his throat so closed, that he could not speak a single word, nor swallow meat or drink, and was so starved to death.' He was buried in the cathedral church of Canterbury, under a monument erected by himself. To this church he was a considerable benefactor: he built the lantern, tower, and a great part of the nave; gave a ring of five bells, called from him Arundel's ring, several rich vestments, a mitre enchased with jewels, a silver gilt crosier, and two gold chalices.

Arundel (Lady Blanch), daughter of the earl of Worcester, and wife of Lord Arundel, celebrated for her brave defence of Wardour castle against the parliamentary army, which consisted of 1300 men; and although the little garrison mustered only forty-five, yet she maintained the place for six days, and then capitulated. She died in 1649, aged sixty-six.

The ARUNDELIAN Marbles, are ancient stones or marbles, first named after Thomas earl of Arundel, who procured them from the east, or from Henry his grandson, who presented them to the university of Oxford. They arrived in England in 1627, and then consisted of thirty-seven statues, 128 busts, and 250 inscriptions, together with a large number of altars, sarcophagi, fragments of sculpture, and an invaluable assemblage of gems; the inscriptions being principally sepulchral, and of a private nature. But one, called the Parian chronicle, from its being written at Paros, is said to have contained a chronological detail of the principal events of Greece, during a period of 1318 years, beginning with Cecrops, before Christ 1582 years, and ending with the archonship of Diognetus, before Christ 264. It is this portion of these marbles which more particularly attracted the attention of the learned. The chronicle of the last ninety years is lost; so that the part now remaining ends at the archonship of Diotimus, 354 years before the birth of Christ; and in this fragment the inscription is at present much corroded and effaced.

The whole of these relics of antiquity, real or pretended, were purchased in Asia Minor, or in the islands of the Archipelago, by Mr. William Petty, who in the year 1624 was sent by the earl of Arundel for the purpose of making such collections for him in the east; and when brought to England were placed in gardens belonging to Arundel house. Soon after their arrival they excited general curiosity, and were inspected by Sir Robert Cotton, and other eminent men, who prevailed upon the learned Selden to employ himself in explaining the inscriptions. The following year Selden accordingly published a small volume in quarto, including about thirty-nine of them. But in the turbulent reign of Charles I. and the subsequent usurpation, Arundel-house was often deserted by the illustrious owners; and in their absence, many of these marbles were defaced and mutilated, and others either stolen or used for the ordinary purposes of architecture. The Parian chronicle in particular, was unfortunately broken. The upper part containing thirty-one epochas, is said to have been worked up in repairing a chimney in Arundel-house. Selden's work becoming very scarce, bishop Fell engaged Mr. Prideaux to publish a new edition of the inscriptions, which was printed at Oxford in 1676. In 1732, Mr. Maittaire obliged the public with a more comprehensive view of the marbles than either of his predecessors. Lastly, Dr. Chandler published a new and splendid description of them in 1763, in which he corrected many mistakes of the former editors; and in some of the inscriptions, particularly that of the Parian chronicle, supplied the lucunæ by many ingenious conjectures. We cannot here enter into the dispute respecting the authenticity of these curious stones. Sir Isaac Newton and other able chronologists and historians have paid little regard to their claims; and in 1788, a Mr. Robertson, in an essay, entitled the Parian Chronicle, boldly, and with much plausibility, asserts them to be a fabrication of comparatively modern date. This treatise was reviewed by the late professor Porson, in the Monthly Review, June 1789; that distinguished Greek scholar fully and very ably vindicating the authenticity of the Parian marbles. See also his Tracts, edited by Mr. Kidd. p. 57. The reader will thus be sufficiently acquainted with both sides of this subject

ARUNDINACEA, in conchology, a species of sabella found in some rivers of Europe. It is subconic, and composed of fragments of the bark of reeds placed on each other.

ARUNDINACEUS, in ornithology, a species of turdus or thrush, that inhabits the reedy marshes of Europe, and is the la rousserolle of Buffon and Brisson; the junco of Ray and Willoughby; and the reed thrush of Dr. Latham. It

is rather larger than the common lurk; of a ferruginous brown color; quill-feathers brown, reddish at the end. It is found in Russia and Poland.

ARUNDINETI, in entomology, a species of tipula; color whitish, with villose antennæ, and black eyes. It is found in Europe, in reedy marshes.

ARUNDINIS, a species of phalæna, living on reeds; wings cinereous with black dots, marked beneath with a central brown spot. Also a species of aphis that lives on the leaves of the wood-reed. The body is green; thorax and head brown.

ARUNDO, in botany, the reed: a genus of the digynia order, triandria class of plants; ranking in the natural method under the fourth order, gramina. The calyx consists of two valves, and the floscules are thick and downy. The following are the principal species, viz. 1. A. arborea, has a tree-like stalk, with narrow leaves, and in all other respects resembles the bambos. 2. A. bambos, or the bamboo, is a native of the East Indies and some parts of America; where it frequently attains the height of sixty feet. See Bamboo. 3. A. debax, or manured reed, a native of warm countries, but will bear the cold of our moderate winters in the open air. It dies to the surface in autumn, but appears again in the spring ten or twelve feet high in one summer. The stalks of this species are brought from Spain and Portugal; and used by weavers, as also for making fishing-rods. 4. A. orientalis is what the Turks use for writing pens: it grows in a valley near mount Athos, as also on the banks of the river Jordan. None of these plants are found in Britain. 5. A. phragmitis, or the common marsh-reed, grows by the sides of our rivers, and in standing waters. 6. A. versicolor, the Indian variegated reed, supposed to be a variety of the debax, differing from it only in having variegated leaves.

ARUNS Tarquinius, the son of Tarquin II. the last king of Rome, who meeting Brutus in the first battle, after the banishment of the royal family, they mutually killed each other.

ARURA, in the middle-age writers, a field ploughed and sowed. Some writers also use the word to signify the work of a day at plough.

ARUSINI Campi, or Arusian Fields, plains in Lucania, famous for the last battle between the Romans and Pyrrhus. That prince being at Tarentum, and hearing that the two new consuls Curius Dentatus and Cornelius Lentulus had divided their forces, the one including Lucania and the other Samnium; he divided a chosen detachment of his army into two bodies, marching with his Epirots against Dentatus, in hopes of surprising him in his camp near Beneventum. But the consul having notice of his approach, marched out of his entrenchments with a strong detachment of legionaries to meet him, repulsed his van guard, put many of the Epirots to the sword, and took some of their elephants. Curius, encouraged by this success, marched into the Arusian fields, and drew up his army in a plain, which was wide enough for his troops, but too narrow for the Epirot phalanx to act. But the king's eagerness to try his strength and skill with so renowned a commander, stimulated him to engage at that great disadvantage. Upon the first signal the action began; and one of the king's wings giving way, victory seemed inclined to the Romans. But that wing where the king fought in person repulsed the enemy, and drove them to their entrenchments. This advantage was in great part owing to the elephants; a circumstance which Curius perceiving, commanded a body of reserve, which he had posted near the camp, to advance and attack those animals with burning torches; which frightened and annoyed them to such a degree, that they wheeled about, broke into the phalanx, and put that body into the utmost disorder. The Romans taking advantage of this confusion, charged with such fury that the enemy were entirely broken and defeated. Pyrrhus retired to Tarentum, attended only by a small body of horse, leaving the Romans in full possession of his camp; which they so much admired, that they ever after imitated it as a model.

ARUS'PEX, ARUS'PICE, ARUS'PICY. Lat. *aruspex*, or *haruspex*, from *ara*, an altar, and *spicere*, to see, to regard.

Adorn'd with bridal pomp, she sits in state;
The public notaries and *aruspex* wait.
Dryden's Juvenal's Satires, 10.

They [the Romans] had colleges for augurs and *aruspices*, who used to make their predictions, sometimes by fire, sometimes by flying of fowls, &c.
Howell's Letters, iii. p. 23.

A flam more senseless than the roguery
Of old *aruspicy* and augury.
Butler's Hudibras, ii. 3.

ARUSPICES, or Haruspices, in Roman antiquity, an order of priests who pretended to foretel future events by inspecting the entrails of victims killed in sacrifice; they were also consulted on occasion of portents and prodigies. The aruspices were always chosen from the best families; and as their employment was of the same nature as that of the augurs, they were as much honored. Their college, as well as those of the other religious orders, had its particular registers and records. Cato, who was an augur, used to say, he wondered how one aruspex could look at another without laughing in his face. The aruspici libri, were a kind of sacred writings wherein the laws and discipline of the aruspices were described.

ARVUM, in ancient agriculture, properly denoted ground ploughed but not sowed. The word is sometimes extended to all arable, or corn land, in contradistinction from pasture.

ARX, in the ancient military art, a town, fort, or castle, for defence of a place. The arx, in ancient Rome, was a distinct edifice from the capitol, though some have confounded the two. The arx, properly speaking, being a place on the highest part of the Capitoline Mount, fortified with towers and pinnated walls, in which was also the temple of Jupiter Capitolinus. This was also the name of a consecrated place on the Palatine Mount, where the augurs publicly performed their office. Off this arx the feciales, or heralds, gathered the grass used in the ceremony of leagues and treaties.

ARYTENOIDES, in anatomy, two cartilages which, with others, constitute the head of the

larynx. It is also applied to some muscles of the larynx.

ARYTÆNOIDEUS, in anatomy, one of the muscles serving to close the larynx.

ARYTHMUS, in medicine, the want of a just modulation in the pulse. It is opposed to eurythmus, a pulse modulated agreeably to nature.

ARZBERG, a market town in the circle of the Maine, district of Wunsiedel, Bavaria. The neighbouring hills yield iron, lime, and alum. The lime burned here is transported as manure to the Upper Palatinate and Bohemia. Seven miles east of Wunsiedel.

ARZILLA, an ancient maritime town of Africa, in the kingdom of Fez, S. S. W. of Tangiers. It was formerly a Roman colony; afterwards fell under the government of the Goths, and was next taken by the Mahommedans. Alphonso of Portugal, surnamed the African, took it by assault in 1472, and brought away the presumptive heir of the crown. After that prince came to the throne, he besieged it, in 1508, with 100,000 men. The Portuguese at length forsook it of their own accord. Long. 5° 40′ W., lat. 35° 40′ N.

AS. Usually called a conjunction, but according to some the Saxon article, *the*, *this* or *that*, which they say may always be substituted for it.

Besides that law which concerneth men *as* men; and that which belongs unto men *as* they are men, linked with others in some society: there is a third, which touches all several bodies politick, so far forth, *as* one of them hath publick concerns with another.

Hooker's Eccles. Polity.

PRINCE HEN. Dar'st thou be *as* good *as* thy word now?

FALST. Why, Hal, thou knowest, *as* thou art but a man, I dare; but *as* thou art a prince, I fear thee, *as* I fear the roaring of the lion's whelp.

Shakspeare. Henry IV.

When thou dost hear I am *as* I have been;
Approach me, and thou shalt be *as* thou wast. *Id.*

The cunningest mariners were so conquered by the storm, *as* they thought it best, with stricken sails, to yield to be governed by it. *Sidney.*

He had such a dexterous proclivity, *as* his teachers were fain to restrain his forwardness. *Wotton.*

The relations are so uncertain, *as* they require a great deal of examination. *Bacon.*

God shall by grace prevent sin so soon, *as* to keep the soul in the virginity of its first innocence. *South.*

Madam, were I *as* you, I'd take her counsel;
I'd speak my own distress.

A. Philip's Distrest Mother.

The objections that are raised against it *as* a tragedy, are as follow.

Gay's Preface to What d'ye Call it.

A simple idea is one uniform idea; *as* sweet, bitter.

Watts.

As, among the ancient Romans, a weight, consisting of twelve ounces; being the same with libra, or the Roman pound. The word is derived from the Greek αις, which in the Doric dialect is used for εις, one, q. d. an entire thing; though others will have it named as, quasi æs, because made of brass.

As, was also the name of a Roman coin, of different weight and different matter in different ages of the commonwealth. Under Numa Pompilius, according to Eusebius, the Roman money was either of wood, leather, or shells. In the time of Tullus Hostilius, it was of brass; and called as, libra, libella, or pondo, because actually weighing a pound or twelve ounces. About 420 years after, the first Punic war having exhausted the treasury, they reduced the as to two ounces. In the second Punic war, Hannibal pressing very hard upon them, they reduced the as to half its weight, viz. to one ounce. And lastly, by the Papirian law, they took away half an ounce more, and consequently reduced the as to the diminutive weight of half an ounce; and it is generally thought that it continued the same during the commonwealth, and even till the reign of Vespasian. The as, therefore, was of four different weights in the commonwealth. Its original stamp was that of a sheep, ox, or sow; but from the time of the emperors, it had on one side a Janus with two faces, and on the reverse the rostrum or prow of a ship.

As, being used to denote any integer or whole, signified in old English law the whole inheritance; whence hæres ex asse, the heir to the whole estate.

ASA; אסא, Heb. i. e. a healer of sickness; king of Judah, succeeded his father Abijam, A. M. 2988. He abolished idolatry, restored the worship of the true God, and, with the assistance of Benhadad king of Syria, took several towns from the king of Israel. He died A. A. C. 917, and was succeeded by Jehoshaphat.

ASA, among naturalists, a word taken by modern authors from the lasar of the ancients, is applied to a gum very different from that anciently known by the name. The asa of the ancients was an odoriferous and fragrant gum; that of after ages had so little title to this epithet, that they distinguished it by an additional one, expressing its being of an offensive smell, as ASAFŒTIDA, which see. The Arabian writers describe two kinds of asa, the one of an offensive, the other of an aromatic smell.

ASA, or ASSA, in the materia medica, a name given to two very different substances, called asa dulcis and asa fœtida.

ASAFŒTIDA, in chemistry, the common name of the FERULA asafœtida of Linnæus, which see.

ASAHEL; אשהאל, Heb. i. e. God has wrought; one of the sons of Zeruiah, David's sister, and the younger brother of Joab. He was one of David's thirty heroes, and remarkable for his swiftness. At the battle of Gibeon he pursued Abner with so much obstinacy, that he was obliged to kill him in self-defence, though it would appear with reluctance; 2 Sam. ii. 19—23.

ASAPH; אסף, Heb. i. e. gathering; the son of Berachiah, a Gershomite, and a famous musician and psalmist under David, king of Israel. Twelve of the Psalms bear his name; but it is doubted whether he was the author of them all, as some relate to later times.

ASAPH, ST. a city of Flintshire, in North Wales, situated in a pleasant valley at the confluence of the Elwy and Clwyd, twenty miles west of Chester, and 205 north-west of London.

As a bishopric, St. Asaph is of great antiquity, being founded about A. D. 560, by Kentigern, bishop of Glasgow. He began the church on the banks of the river Elwy, whence it is called by the Welsh, Land Elwy, and in Latin, Elwensis. Kentigern returning into Scotland left St. Asaph his successor. The country was frequently in after times the seat of war between the English and the Welsh; and the records of the see are therefore very defective. This diocese does not contain any one whole county, but consists of part of Denbigh, Flint, Montgomery, and Merioneth shires, and a small part of Shropshire; wherein are 121 parishes, and 131 churches and chapels, most of which are in the immediate patronage of the bishop. It has but one archdeaconry, viz. that of St. Asaph, which is united to the bishopric, for the better maintenance thereof. The town, although situated in a rich valley, is a poor ill-built place; and the cathedral a plain building, 170 feet long, 108 broad, and 90 high; near it are the vestiges of a large Roman camp. Here is a bridge over the two rivers. Market on Saturday. The deanery of St. Asaph is valued at £45 11*s.* 5*d.* and is united to the vicarage of Henllan in the deanery of Ross.

Asaph, St. a native of North Wales, was descended of an ancient family, and flourished under Carentius king of the Britons, about A. D. 590. Being a monk in the convent of Llan Elwy, and the successor of its founder Kentigern, that establishment received his name ever after. He wrote the Ordinances of his church, and the Life of St. Kentigern. Bayle says he was the first who received unction from the pope.

ASAPHEIS, *ασαφεις*; from *α* negative, and *σαφης*, clear; persons who do not utter their words in a clear manner. The defect is occasioned, says Galen, 'either by some hurt which the organs of speech have contracted from a disorder of the nerves, or else by delirium.'

ASAPPES, or Azapes, an order of soldiers in the Turkish army, whom they expose to the first shock of the enemy. The word is derived from the Turkish saph, which signifies rank, from whence they have formed asphaph, to range in battle. They travel on foot, and have no pay but the plunder they can get from the enemy.

ASAR, a gold coin current at Ormus in the Persian Gulf, worth 6*s.* 8*d.*

ASAROTA, *ασαρωτα*; from *α* and *σαιρω*, I sweep; a kind of painted pavement in use before the invention of Mosaic work. The most celebrated was that at Pergamos, painted by Sesus, and exhibiting the appearance of crumbs, as if the floor had not been swept after dinner; whence, according to Pliny, the denomination. Perrault supposes it to have been a black kind of pavement of a spongy matter.

ASARUM, Asarabacca, in botany, a genus of the monogynia order, and dodecandria class of plants. The calyx is trifid or quadrifid, and rests on the germen; there is no corolla; the capsule is leathery and crowned. There are three species, viz. 1. A. Canadense, a native of Canada. 2. A. Europæum, growing naturally in some parts of England; and 3. A. Virginicum, a native of America. The dried roots of this plant have been generally brought from the Levant; those of our own growth being supposed weaker. Both the roots and leaves have a nauseous, bitter, acrimonious, hot taste; their smell is strong, and not very disagreeable. The principal use of this plant among us is as a sternutatory; and the root of asarum is perhaps the strongest of all the vegetable errhines, white hellebore itself not excepted. The leaves are the principal ingredient in the pulvis sternutatorius, or pulvis asari compositus, of the shops.

ASASI, in botany, a name given by the people of Guinea to a tree, the leaves of which being boiled in water, and held to the mouth, cure the tooth-ache. In its form and manner of growing it resembles the laurel; the leaves are very hard and stiff, and grow alternately on the stalks; they have short pedicles, and the branches are blackish and rugged, but variegated with small reddish spangles, or scaly protuberances.

ASBAMEA, in ancient geography, a fountain of Cappadocia, near Tyana, sacred to Jupiter and to an oath. Though this fountain bubbled up as in a state of boiling, yet its water was cold; and never ran over, but fell back again.

ASBECK, a town of the bishopric of Munster, Westphalia, annexed to the possessions of the house of Salm in 1803. Here is a convent for noblemen's daughters. It is four miles south-east of Ahaus.

ASBEN, a considerable kingdom in the interior of Africa, between Fezzan and Cashna. The sultan is said by Hornemann to rank next to that of Bornou among the sovereigns of interior Africa. Zanfara and Guber are tributaries to him; he resides at Agades, and himself, with the greater part of his subjects, are Tuaricks of the tribe Kolluvi.

ASBESTOS, or Asbestus, in chemistry, from *α* privative, and *σβεννυμι*, I extinguish; a mineral consisting principally of silex and magnesia, with a small proportion of alumina, lime, and iron. It is a greenish brittle substance, unctuous to the touch, and somewhat elastic. Its fibres exposed to the violent heat of the blowpipe, exhibit slight indications of fusion; though the parts, instead of running together, moulder away, and part fall down, while the rest seem to disappear before the current of the air. Ignition impairs the flexibility of asbestos in a slight degree. According to Herodotus, the Egyptians made a cloth of this substance, which they used for the purpose of wrapping up the bodies of the dead. Pliny says, he had seen napkins made of it, which, being taken foul from the table after a feast, were thrown into the fire, and by that means were better scoured than if they had been washed in water, &c. But he mentions its principal use being for the making of shrouds for royal funerals, so that the ashes might be preserved distinct from those of the wood, &c. whereof the funeral pile was composed. He calls the asbestos, inventu rarum, textu difficillimum. Bapt. Porta assures us, that in his time the spinning of asbestos was a thing known to every body at Venice; and Sig. Castagnatta, a superintendant of mines in Italy, is said

to have carried the manufacture to such perfection, that his asbestos was soft and tractable, much resembling lamb-skin dressed white: he could thicken and thin it at pleasure, and thus either make it into a very white skin or into paper. His method of preparing it is thus described: the stone is laid to soak in warm water; then opened and divided by the hands, that the earthy matter may be washed out. The ablution being several times repeated, the flax-like filaments are collected and dried; being most conveniently spun with an addition of flax. Two or three filaments of the asbestos are easily twisted along with the flaxen thread, if the operator's fingers are kept oiled. The cloth also, when woven, is best preserved by oil from breaking or wasting. On exposure to the fire the flax and the oil burn out, and the cloth remains pure and white. The shorter filaments which separate in washing the stone, may be made into paper in the common manner. Five varieties are described: 1. Common asbestos, which occurs in masses of fibres of a dull greenish color, and of a pearly lustre. It is scarcely flexible, and greatly denser than amianthus. Specific gravity, 2·7. Fuses with difficulty into a grayish-black scoria. It is composed of 63·9 silica, 16 magnesia, 12·8 lime, 6 oxide of iron, and 1·1 alumina, and is more abundant than amianthus, being usually found in serpentine, at Portsoy, the Isle of Anglesea, the Lizard in Cornwall, &c. It was found in the limestone of Glentilt, by Dr. M'Culloch in a pasty state, but it soon hardened by exposure to the air. 2. Amianthus, which occurs in very long, fine, flexible, elastic fibres, is of a white, greenish, or reddish color. It has a silky or pearly lustre, and is slightly translucent; sectile; tough; specific gravity, from 1 to 2·3; it melts with difficulty before the blow-pipe into a white enamel, and consists of 59 silex, 25 magnesia, 9·5 lime, 3 alumina, and 2·25 oxide of iron. It is usually found in serpentine, in Savoy; in long and beautiful fibres, in Corsica; near Bareges in the Pyrenees; in Dauphiny and St. Gothard; at St. Keverne, Cornwall; and at Portsoy, Scotland; in mica slate at Glenelg, Invernessshire, and near Durham. 3. Mountain leather, consisting not of parallel fibres, but interwoven and interlaced so as to become tough. When in very thin pieces it is called mountain paper. Its color is yellowish-white, and its touch meagre. It is found at Wanlockhead, in Lanarkshire. Its specific gravity uncertain. 4. Mountain cork, or elastic asbestos, is, like the preceding, of an interlaced fibrous texture; is opaque, has a meagre feel and appearance, not unlike common cork, and like it too, is somewhat elastic. It swims on water. Its colors are white, gray, and yellowish-brown. Receives an impression from the nail; very tough; cracks when handled, and melts with difficulty before the blow-pipe. Specific gravity, from 0·68 to 0·99. It is composed of silica 62, carbonate of lime 12, carbonate of magnesia 23, alumina 2·8, oxide of iron 3. 5. Mountain wood, or ligniform asbestos, is usually massive, of a brown color, and having the aspect of wood. Internal lustre, glimmering. Soft, sectile, and tough; opaque; feels meagre; fusible into a black slag. Specific gravity 2·0. It is found in the Tyrol; Dauphiny; and in Scotland, at Glentilt, Portsoy, and Kildrumie.

ASCALON, an ancient city, one of the five satrapies or principalities of the Philistines; situated on the Mediterranean, forty-three miles south-west of Jerusalem, between Azotus on the north, and Gaza on the south. It was the birthplace of Herod the Great, thence surnamed Ascalonites, and was famous for its escallions, which take their name from this town. It is now called Scalona.

ASCANII, in entomology, a species of curculio, of shape cylindrical, color black, and bluish on the sides.

ASCANIUS, the son of Æneas and Creusa, succeeded his father in the kingdom of the Latins, and defeated Mezentius king of the Tuscans, who had refused to conclude a peace with him. He founded Alba Longa; and died about A. A. C. 1139, after reigning thirty-eight years.

Ascanius, in entomology, a species of papilio. Color black, above and beneath, with a white band; posterior wings reddish; it is a native of sil.

ASCARIS, *ασκαρις*; from *ασκεω*, to move about; in zoology, an intestinal worm so called from its troublesome motion. In the Linnæan system it is a genus of the class vermes, order intestina; thus generically characterised. Body round, elastic, and tapering towards each extremity; head with three vesicles; tail obtuse or subulate; intestines spiral, milk-white, and pellucid. Upwards of eighty species have been enumerated, generally deriving their name from the animal they chiefly infest: for the intestinal canal of most animals is affected by some species.

The species of Ascaris described by Gmelin are arranged in the following order:

Infesting man, and the mammalia.—Vermicularis, lumbricoides;—vespertilionis, in the long-eared bat:—Phocæ, bifida, canis, visceralis, lupi, vulpis, leonis, tigridis, felis, cati, martis, bronchialis, renalis, mephitidis, gulonis, talpæ, muris, hirci, vituli, equi, suis, apri.

Infesting birds.—Aquilæ, albicillæ, buteonis, milvi, subbuteonis, hermaphrodita, cornicis, coraciæ, cygni, anatis, fuligulæ, lari, ciconiæ tardæ, papillosa, gallopavonis, galli, gallinæ, phasiani, tetraonis, columbæ, alaudæ, sturni, turdi.

Infesting reptiles.—Testudinis, lacertæ, bufonis, pulmonalis, rubetræ, trachealis, ranæ, intestinalis, dyspnoos, insons.

Infesting fishes.—Anguillæ, marina, blennii, rhombi, percæ, globicola, lacustris, siluri, farionis, truttæ, maraenæ, acus, halecis, argentinæ, gobionis, rajæ, squali, lophii.

Infesting worms —Lumbrici.

We can only describe the two principally infesting man.

1. A. lumbricoides, is about the same length with the lumbricus terrestris, or common earth-worm; but it wants the protuberant ring towards the middle of the body, the only mark by which they can be properly distinguished. The body is cylindrical, and subulated at each extremity; but the tail is somewhat triangular. The lumbricoides is the worm which is most commonly

found in the human intestines. It is viviparous, and produces vast numbers. 2. A. vermicularis, with faint annular rugæ and the mouth transverse, is about a quarter of an inch long, and thicker at one end than the other. It is found in boggy places, in the roots of putrid plants, and very frequently in the rectum of children and horses. It emaciates children greatly, and is sometimes vomited up. See MEDICINE and WORMS.

ASCAROIDES, a species of cucullanus found in the stomach of the silurus glanus: the head is orbicular; tail round, short, and pointed with two spicules.

ASCEN'D, ASCEN'DANT, *n.* & *adj.* ASCEN'DANCY, ASCEN'SION, ASCEN'SIVE, ASCEN'T. *Ascendo*, from *ad*, and *scendo*, to climb. To mount upwards, to mount, to rise, to acquire an elevation, a superiority.

Eneas and vnsilly Dido baith tuay,
To forest grathis in hunting forth he wend
To marrow als fast as Titan dois *ascend*,
And ouer the warld gan his bemes spred.
Douglas Eneados, bk. iv. p. 104.

Northumberland, thou ladder wherewithal
The mounting Bolingbroke *ascends* the throne.
Shakspeare. Richard II. act v. sc. 2.

Over head up grew
Insuperable height of loftiest shade,
Cedar and pine and fir and branching palm,
A sylvan scene; and as the ranks *ascend*,
Shade above shade, a woody theatre
Of stateliest view.
Milton's Paradise Lost, book iv. line 131.

Then, rising from his grave,
Spoil'd principalities and pow'rs; triumph'd
In open shew; and, with *ascension* bright,
Captivity led captive through the air. *Id.*

Thus look'd Elisha, when to mount on high,
His master took the chariot of the sky;
The fiery pomp, *ascending*, left the view;
The prophet gazed, and wished to follow too.
Parnell.

In his blest life
I see the path, and in his death the price,
And in his great *ascent*, the proof supreme
Of immortality. *Young.*

Themistocles now entered. At his look,
Which carried strange *ascendancy*, a spell
Controlling nature, was the youth abash'd.
Glover's Athenaid, book xiv.

Thus, having passed the rocks in safety, we found the rest of the coast rise from the sea with a smooth and easy *ascent*; and, floating at ease upon a gentle tide, we soon reached the sands with our feet.
Hawkesworth's Telemachus.

Their tribes adjusted, clean'd their vig'rous wings,
And many a circle, many a short essay,
Wheel'd round and round: in congregation full,
The figur'd flight *ascends*. *Thomson.*

Fire fill'd his eyes;
Turning, he bade the multitude without
Ascend the rampart; they his voice obey'd,
Part climb'd the wall, part pour'd into the gate.
Cowper's Iliad, book xii.

ASCENDANT, in astrology, denotes the horoscope, or the degree of the ecliptic which rises upon the horizon at the time of the birth of any one. This is supposed to have an influence on the person's life and fortune, by giving him a bent and propensity to one thing more than another. In the jargon of Astrologers, it is also called the first house, the angle of the east, or oriental angle, and the significator of life.—Such a planet ruled in his ascendant; Jupiter was in his ascendant, &c. Hence the word is also used in a moral sense, for a certain superiority which one man has over another from some unknown cause.

ASCENDANTS, in law, are opposed to descendants in succession; i. e. when a father succeeds his son, or an uncle his nephew, &c. heritage is said to ascend, or go to ascendants.

ASCENDING, in astronomy, is said of such stars as are rising above the horizon in any parallel of the equator. And thus likewise,

ASCENDING LATITUDE, is the latitude of a planet, when going towards the north pole.

ASCENDING NODE, is that point of a planet's orbit, wherein it passes the ecliptic, to proceed northward. This is otherwise called the northern node, and represented by this character ☊.

ASCENDING SIGNS, among astrologers, are those which are upon their ascent, or rise, from the nadir, or lowest part of the heavens, to the zenith, or highest.

ASCENDING VESSELS, in anatomy, those which carry the blood upwards; as the aorta ascendens. See ANATOMY.

ASCENSION, an island of the Atlantic, in S. lat. 8° 8′, and W. long. 14° 28′, lately taken possession of by Great Britain, with a view to the better defence of St. Helena. Prior to this it was wholly uninhabited. The island, which has an excellent harbour, is ten miles in length from north-west to south-east, and from five to six in breadth. A flag officer resides here, on the single spot which presents a vegetable mould, in the south-east corner of the island: and homeward bound vessels from the Cape of Good Hope and the East Indies call here, under certain regulations. Plenty of fish and sea-fowl are found on the shores, and some fine turtle. ASCENSION is evidently a volcanic production; at a distance it has the appearance of an immense sugar-loaf arising out of the sea, but on approaching it the top is broken into various barren peaks.

ASCENSION, in astronomy, is either right or oblique. Right ascension of the sun, or a star, is that degree of the equinoctial, counted from Aries, which rises with the sun or star in a right sphere. Oblique ascension is an arch of the equator intercepted between the first point of Aries and that point of the equator which rises together with a star in an oblique sphere.

To find the right ascension of the sun, stars, &c. by trigonometry, say, as the radius is to the cosine of the sun's greatest declination, or obliquity of the ecliptic; so is the tangent of the sun's or star's longitude to the tangent of the right ascension. To find the ascensional difference, you must have the latitude of the place, and the sun's declination given: then say, as the radius is to the tangent of the latitude; so is the tangent of the sun's declination to the sine of the ascensional difference sought. This, converted into time, shows how much he rises before, or sets after, six o'clock; by subtracting which from the right ascension, when the sun is

in the northern signs, and adding it when he is in the southern ones, you will find the oblique ascension.

Ascension Day; the day on which the ascension of our Saviour is commemorated, commonly called Holy Thursday; the Thursday but one before Whitsuntide.

Ascensional Difference, is the difference between the right and oblique ascension of the same point to the surface of the sphere. The ascensional difference of the sun, converted into time, is just so much as he rises before or after six o'clock.

ASCENSIONIS, in ichtnyology, a species of perca, found about Ascension Island; color reddish above, whitish beneath, the tail bifurcated.

Ascent, in logic, denotes a kind of argument, wherein we rise from particulars to universals: as, when we say, this man is an animal, and that man is an animal, and the other man, &c. therefore every man is an animal.

Ascent, in physics, implies the motion of a body upwards, or the continual recess of a body from the earth. The Peripatetics attributed the spontaneous ascent of bodies to a principle of levity inherent in them. The moderns deny spontaneous levity; and show, that whatever ascends, does it in virtue of some external impulse or extrusion. Thus smoke and other rare bodies ascend in the atmosphere; and oil, light woods, &c. in water; not by any internal principle of levity, but by the superior gravity or tendency downwards of the parts of the medium where they are. The ascent of light bodies in heavy mediums is produced after the same manner as the ascent of the lighter scale of a balance. It is not that such scale has an internal principle whereby it immediately tends upwards; but it is impelled upwards by the preponderancy of the other scale; the excess of the weight of the one having the same effect, by augmenting its impetus downwards, as so much real levity in the other; because the tendencies mutually oppose each other, and that action and re-action are always equal.

ASCERTAIN', } Old Fr. *acertener*, from
Ascertain'ment. } *ad* and *certum*, *cerno*; gr. *κρινω*, to distinguish, to separate. To be sure or certain, to discover the truth, to bring inquiries to a satisfactory result.

The divine law both *ascertaineth* the truth, and supplieth unto us the want of other laws. *Hooker.*

Money differs from uncoined silver in this, that the quantity of silver in each piece is *ascertained* by the stamp. *Locke.*

Right judgment of myself may give me the other certainty; that is, *ascertain* me, that I am in the number of God's children.

Hammond's Practical Catechism.

This makes us act with a repose of mind, and wonderful tranquillity; because it *ascertains* us of the goodness of our work. *Dryden's Dufresnoy.*

He tells us that the positive *ascertainment* of its limits, and its security from invasion, were among the causes for which civil society itself has been instituted.

Burke on the Revolution in France.

The characters of great men, which are always mysterious while they live, are *ascertained* by the faithful historian, and sooner or later receive their wages of fame or infamy, according to their true deserts. *Cowper's Letters.*

ASCESIS, from the verb *ασκειν*, used by the ancients in speaking of the sports and combats of the athletæ, properly denotes exercise of the body. It is also used by philosophers, to denote an exercise conducive to virtue, or to the acquiring a greater degree of virtue. This is particularly denominated the philosophical ascesis, because practised chiefly by philosophers, who make a more peculiar profession of improving themselves in virtue; on the model of which the ancient Christians introduced a religious ascesis.

ASCETERIUM, in ecclesiastical writers, a monastery, or place set apart for the exercises of religion. The word is formed from ascesis, exercise; or ascetra, one who performs exercise. Originally it signified a place where the athletæ or gladiators performed their exercise.

ASCET'ICK, *n.* & *adj.* } *Ασκετικος*, *ασκεω*
Asceт'icism. } to exercise. Applied primarily to those who exercised themselves in religious contemplations and for this purpose separated themselves from the world.

None lived such long lives as monks and hermits; sequestered from plenty, to a constant *ascetick* course of the severest abstinence and devotion. *South.*

I am far from commending those *asceticks*, that out of a pretence of keeping themselves unspotted from the world, take up their quarters in deserts. *Norris.*

He that preaches to man, should understand what is in man; and that skill can scarce be attained by an *ascetick* in his solitudes. *Atterbury.*

The truth is we have seen, and yet do see, religious societies whose religious doctrines are so little serviceable to civil government that they can prosper only on the ruin and destruction of it. Such are those which teach the sanctity of celibacy and *asceticism*.

Warburton's Alliance, book ii.

Ascetics, persons in the primitive times who devoted themselves to the exercises of piety, in a retired life, and particularly to prayer, abstinence, and mortification. Afterwards this title was bestowed upon the monks, especially such of them as lived in solitude. This is also a title of several books of spiritual exercises, as the Ascetics, or devout exercises of St. Basil, archbishop of Cæsarea in Cappadocia, &c.

ASCHAFFENBURG, a town and district of Germany, on the Maine, formerly belonging to the elector of Mentz, who had a palace there, but now included in the kingdom of Bavaria. It is memorable for being the place where king George II. took up his quarters the night before the battle of Dettingen. It stands on an eminence, in a delightful country, and is of a quadrangular form. The number of inhabitants in the town is about 6400; they received a considerable augmentation by the emigrations from Mentz, on the occupancy of that city by the French in 1798. It has four churches, and a foundation called Insignis Collegiata, the capuchin monastery; the ancient Jesuits' college is now a lyceum or public school. Aschaffenburg was taken by the French in July 1796, and again in 1800. The rivulet of this name here discharges itself into the Maine. This town is eighteen miles south-east of Frankfort, and forty east of Mentz.

ASCHAM (Roger), was born at Kirby-Wiske, near North Allerton, in Yorkshire, in the year

1516. His father was steward to the noble family of Scroop. Roger was educated in the family of Sir Anthony Wingfield, who, about the year 1530, sent him to St. John's College, Cambridge, where he was soon distinguished for his application and abilities. He took his degree of A.B. at the age of eighteen; was soon after elected fellow of his college; and in 1536 proceeded A.M. In 1544 he was chosen university orator; and, in 1548, was sent for to court to instruct the lady Elizabeth (afterwards queen) in the learned languages. In 1550 he attended Sir Richard Morysine, as secretary, on his embassy to the emperor Charles V., at whose court he continued three years, and in the mean time was appointed Latin secretary to Edward VI. But upon the death of that prince, he lost his preferment and all his hopes, being professedly of the reformed religion; yet, contrary to his expectations, he was soon after, by the interest of his friend lord Paget, made Latin secretary to the king and queen. In June 1554 he married Mrs. Margaret How, with whom he had a considerable fortune. It is very remarkable, that, though Mr. Ascham was known to be a protestant, he continued in favor, not only with the ministry of those times, but with queen Mary herself. Upon the accession of Elizabeth, he was confirmed in his post of Latin secretary, and resumed his employment as preceptor to her majesty in the learned languages. He died in 1568, not rich, but much regretted, especially by the queen. He wrote, 1. Toxophilus. The schole or partitions of shooting, contayned in two bookes, written by Roger Ascham, 1544, and now newly perused. Pleasaunt for all gentlemen and yeomen of England, &c. Lond. 1571. This treatise was dedicated to Henry VIII. who settled a pension of £10 per annum upon the author. It is said to have been written principally to promote the improvement of English prose. 2. A Report of the affairs and state of Germany, and the emperor Charles his court, &c. 4to. 3. The Schoolmaster: first printed in 1573, 4to. Mr. Upton published an edition with notes, in 1711. It has uncommon merit. 4. Latin epistles; first published by Mr. Grant in 1576: the best edition is that of Oxford in 1703. These are much admired on account of the style, and esteemed almost the only classical work of the kind written by an Englishman. 5. Apologia contra Missam, 1577, 8vo. His works were collected and published by Bennet, in one volume, 4to. 1769, with a life, by Dr. Johnson.

ASCHERSLEBEN, the chief town of a district in the principality of Halberstadt, Prussia, is seated between the Eine and Wipper, sixteen miles south-east of Halberstadt. It was formerly a Hanse town, and the capital of the principality of Ascania, but was annexed to Halberstadt in the year 1320. Here are manufactures of frieze and flannel; and the suburbs, one of which is called the New Town, are well built. Inhabitants about 8000; and here are a Lutheran and Calvinist school; four churches, one of which, called the Market church, is possessed by the two sects in common. The castle is in ruins.

ASCHILLIUS, king of the Dacians, one of those monarchs, who is said to have assisted king Arthur in his wars.

ASCIA, in antiquity, an instrument supposed to be of the axe kind, used in the fabric of the Roman tombs, and frequently represented on them.

Ascia, in surgery, is a kind of bandage, somewhat oblique or crooked; whose form and use are described by Sculteus, in his Armam. Chirug.

ASCIBURGIUM, in ancient geography, supposed to be one of the fifty citadels built on the Rhine, is mentioned by Tacitus, who adds, that some imagine it was built by Ulysses. Here was a Roman camp and a garrison. To its situation on the banks of the Rhine answers a small hamlet, now called Asburg.

ASCIDIA, a genus of animals belonging to the order of vermes mollusca. The body is cylindrical, and fixed to a shell, rock, &c. It has two apertures, one on the summit, the other lower, forming a sheath. These creatures have the power of contracting or dilating themselves; most of them are sessile. Gmelin enumerates the following species: papillosa, gelatinosa, intestinalis, quadridentata, rustica, echinata, mentula, venosa, prunum, conchilega, parallelogramma, virginea, canina, patula, aspersa, scabra, orbicularis, corrugata, lepadiformis, conplanata, tuberculum, villosa, clavata, pedunculata, mammillaris, globularis, phusca, gelatina, crystallina, octodentata, patelliformis, pyura, aurantium, globularis.

ASCINDOE, in botany, a name given by the people of Guinea to a shrub, which they use in medicine, boiling it in water, and giving the decoction in gonorrhœas, and the like complaints. Petiver has named it the prickly Guinea shrub. The thorns on the large branches are very strong.

ASCITÆ; from *ασκος*, a bag or bottle; in antiquity, a sect of Montanists, who appeared in the second century; so named, because they introduced a kind of Bacchanals into their assemblies, who danced round a bag or skin blowed up; saying, they were those new bottles filled with new wine, whereof our Saviour makes mention, Matth. ix. 17.—They are sometimes also called Ascodrogitæ.

ASCITES; from *ασκος*, a water bottle; in medicine, dropsy of the belly; so called from the protuberance of the belly in that disease resembling a bottle. It is divided into two species, ascites abdominalis, in which there is a regular and equal intumescence of the abdomen; and ascites saccatus, when the ovaries, &c. are the seat of the disease, and the swelling, at least in the beginning, is partial. The cure is difficult, since the disease is often only the symptom of a decaying constitution; evacuations are the chief palliatives, and paracentesis (*παρακεντεω*, to perforate), or tapping, relieves for a time, and, in some cases, permanently. See Medicine.

ASCLEPIA, a festival of Æsculapius the god of physic, observed particularly at Epidaurus, where it was attended with a contest between the poets and musicians, whence it was likewise called *Ιερος αγων*, the sacred contention.

ASCLEPIAD, in ancient poetry, a verse composed of four feet, the first of which is a spondee,

the second and third choriambuses, and the last a pyrrhichius: or of four feet and a cæsura, the first a spondee, the second a dactyl, after which comes the cæsura, then the two dactyls; as

Mæcē|nās ătăvīs | ēdĭte | rēgĭbŭs.
O ēt | præsĭdĭ|um | dūlcĕ dĕ|cūs mĕŭm.

ASCLEPIADES, a celebrated physician among the ancients, was a native of Prusa, in Bithynia, and practised physic at Rome, about A. C. 96. He was the head of a new sect; and, by prescribing wine and cold water in the cure of the sick, acquired a very great reputation. He wrote several books, frequently mentioned by Galen, Celsus, and Pliny; but they are now lost.

ASCLEPIADES, a famous physician under Adrian, of the same city with the former. He wrote on the composition of medicines, both internal and external.

ASCLEPIAS, SWALLOW-WORT, in botany, a genus of the digynia order, and pentandria class of plants; ranking in the natural method under the thirtieth order, contortæ. The generic character is taken from five oval, concave, hornlike nectaria, which are found in the flower. There are nineteen species, of which the following are the most remarkable, viz. 1. A. alba, or common swallow-wort. 2. A. curassavica, or bastard ipecacuanha, a native of the warm parts of America. 3. A. Syriaca, or greater Syrian dogsbane. The root of the first species is used in medicine. Though reckoned by botanists a species of dogsbane, it may be distinguished from all the poisonous sorts, by its yielding a limpid juice. The root has a strong smell, especially when fresh, approaching to that of valerian, or nard; the taste is at first sweetish and aromatic, but soon becomes bitterish, subacrid and nauseous. It is esteemed sudorific, diuretic, and emmenagogue. It is also frequently employed by the French and German physicians as an alexipharmic, and sometimes as a succedaneum to contrayerva, whence it has received the name of contrayerva Germanorum.

ASCLEPIODORUS, a British prince who flourished in the third century. He killed Alectus the Roman general, who had slain the celebrated Carausius; and was elected king of the Britons, A. D. 232. He besieged and took London from the Romans, and threw Livius Gallus the Roman general into a brook, which thence received the name of Gallbrook, since changed into Wallbrook. He was at last slain by Coilus II. king of the Britons, A. D. 260.

ASCOBOLUS, in botany; from *ασκος*, a skin, and *βολος*, a cast; so called because the seeds are thrown out with elasticity; class, cryptogamia fungi. Its essential characters are, receptacle, fleshy, hemispherical; seed-cases oblong, discharged elastically; seeds moist, about eight. 1. A. furfuraceous, powdery ascobolus. Common on cow-dung late in autumn. 2. A. carneus, flesh-colored ascobolus; found on dung in woods, rare. 3. A. glaber, smooth brown ascobolus, on cow-dung in autumn. 4. A. immersus, sunk ascobolus; in the same situations, almost entirely sunk in the dung, so that the seed-cases only are prominent.

ASCODUTÆ, in church history, a sect of Christians, in the second century, who rejected all use of symbols and sacraments, on this principle, that incorporeal things cannot be communicated by things corporeal, nor divine mysteries by any thing visible.

ASCOGEPHYRUS, in writers of the middle age, a bridge supported on bags made of leather, or bullocks' hides. Such bridges appear to have been in use among the ancients, and to have given the denomination to a tribe of Arabs, hence called Ascitæ.

ASCOLI, anciently called Asculum Picenum, a pretty large and populous town of Italy, in the marquisate of Ancona, and territory of the church. It is a bishop's see, and seated on a mountain between the rivers Tronto and Castellano, forty-eight miles south of Ancona.

ASCOLI DI SATRIANO, formerly called Asculum Apulum, and Asculum Picenum, a city of Naples, in the Capitanata, with a bishop's see under the archbishop of Benevento, seventy miles east of Naples, and thirty west of Manfredonia.

ASCOLIA, in Grecian antiquity, a festival celebrated by the Athenian husbandmen in honor of Bacchus, to whom they sacrificed a he-goat, and made a foot-ball of his skin, because that animal destroys the vines. See *Virgil, Georg.* ii. 380.

ASCONIUS PEDIANUS, an ancient grammarian of Padua; and, according to Servius, an acquaintance of Virgil's. He wrote commentaries on Cicero's Orations, fragments of which are published in Cicero's works.

ASCOPHORA, in botany; from *ασκος*, bladder, and *φερω*, to bear; class cryptogamia fungi. Its essential characters are, thread-shaped, terminating in a slightly inflated head. There is but one species, viz. A. perennis, perennial bladder-mould.

ASCORCA, a town and valley of Majorca, six leagues from Palma, principally known by its famous sanctuary, Nuestra Senora de Lluch. This is a large and beautiful edifice, containing an image of the virgin, said to have been miraculously discovered on the spot in 1238. The number of persons connected with this establishment is 400. The canons are proprietors of the valley, which abounds in wine and olives.

ASCOUGH (William), L. L. D. appointed bishop of Salisbury in 1438, and soon after confessor to king Henry VI. He was seized by the famous rebel Jack Cade on the 28th June, 1450, who, after plundering his carriage, fell upon him the next day, while he was officiating at the altar, in Edington, Lincolnshire, and dragging him to a neighbouring hill dashed out his brains.

ASCRA, a village of ancient Greece near Mount Helicon, the birth place of the poet Hesiod.

ASCRI'BE, ASCRI'BABLE, ASCRIP'TION. ASCRIPTI'TIOUS. } Lat. *ad scribo*, to write to. Primarily to practice the art of writing on any substance and with any instrument. Subsequently to charge, attribute, or place to the account of any one, whether in writing or otherwise.

Oh! ye traitours and maintainers of madness,
Unto your foly I *ascribe* all my paine;
Ye haue me depriued of ioy and gladnesse,
So dealing with my lord and soueraine.
Chaucer. Lamentation of Marie Magdalene, fol. 319. ch. iv.

True wisdom teaches to distinguish God's actions, and to *ascribe* them to the right causes.
Hall's Contemplations.

Ascribe thou nation, every favour'd tribe,
Excelling greatness to the Lord *ascribe*;
The Lord, the rock on whom we safely trust,
Whose work is perfect, and whose ways are just.
Parnell. The Gift of Poetry.

The cause of his banishment is unknown; because he was unwilling to provoke the emperor, by *ascribing* it to any other reason than what was pretended.
Dryden.

To this we may justly *ascribe* those jealousies and encroachments which render mankind uneasy to one another. *Rogers.*

These perfections must be somewhere; and therefore may much better be *ascribed* to God, in whom we suppose all other perfections to meet, than to any thing else. *Tillotson.*

The greater part have been forward to reject it upon a mistaken persuasion; that those phenomena are the effects of nature's abhorrency of a vacuum, which seem to be more fitly *ascribable* to the weight and spring of the air. *Boyle.*

Sometimes we *ascribe* to ourselves the merit of good qualities, which if justly considered should cover us with shame. *Craig.*

Holiness is *ascribed* to the pope; majesty to kings: serenity or mildness to princes; excellence or perfection to ambassadors; grace to archbishops; honor to peers. *Addison.*

The innocent gambols of a few otters, have been known to occasion those yells which the vulgar of this country mistake for laughing or crying, and *ascribe* to a certain goblin, who is supposed to dwell in the waters, and to take delight in drowning the bewildered traveller. *Beattie.*

ASCRIPTI, or ADSCRIPTI, in antiquity, those who entered their names in the colonies, and became coloni.

ASCRIPTITII, or ADSCRIPTITII, in ancient barbarous customs, a kind of villains, who, coming from abroad, settled in the lands of some new lord, and became so annexed to the lands that they might be transferred and sold with them. Ascriptitii is sometimes also used in speaking of aliens or foreigners newly admitted to the freedom of a city or country.

ASCRIPTITII was used in the military laws for the recruits to supply the legions, called also ACCENSI, which see.

ASCRIVIUM, in ancient geography, a town of Dalmatia, on the Sinus Rhizicus, now called Cattaro, in Venetian Dalmatia.

ASCULUM APULUM, and PICENUM. See ASCOLI.

ASCUS, in natural history, the pouch or bag of the opossum, for receiving its young. It is a skinny bag, separate from the rest of the body, but adhering by a membrane to the bottom of the belly.

ASCYRUM, PETER'S WORT, in botany, a genus of the polyandria order, and the polyadelphia class of plants, ranking in the natural method under the twentieth order, rotaceæ: CAL. four leaves: COR. four petals; the filaments are numerous, and divided into four bundles. There are three species: 1. A. crux andreæ; 2. A hypericoides; 3. A. villosum; all natives o the West-Indies, or America.

ASDRUBAL, the name of several Carthaginian generals. See CARTHAGE.

ASEKAI, ASEKI, the name which the Turkish emperors give to their favorite sultanas, generally those who have brought forth sons. These are greatly distinguished above others in their apartments, attendants, pensions, and honors. They have sometimes shared the government. The sultana who first presents the emperor with a male child is reckoned the chief favorite, and is called buyuk aseki.

ASELE-LAPPMARK, a division of Swedish Lapland, contains the large parish of Asele, sixty English miles in length. In the town of this name there is a church, erected in 1648. Here is also a school, established in 1730, where six children of Laplanders are educated at the expense of the government. This place is moreover the seat of a court of justice, and has a yearly fair. The inhabitants trade in rein-deer skins, flesh, butter, cheese, fowls, fish, and furs. Eighty-five miles west of Umea. Long. 17° 4 E., lat. 64° 12′ N.

ASELLA, in entomology, a species of phalæna, of the bombyx family, found in Germany, wings brownish without spots.

ASELLI, in astronomy, two fixed stars of the fourth magnitude, in the constellation Cancer.

ASELLI or ASELLIUS (Caspar), an Italian anatomist of the seventeenth century, who distinguished himself by discovering the lacteal vessels. He was born at Cremona, and studied medicine, and became professor of anatomy in the university of Pavia. Aselli first observed the lacteals in dissecting a living dog. His investigations were published after his death at Milan in 1627.

ASELLINA, in zoology, a species of Lernæa, having the body lunated, and the thorax heart-shaped. Found fixed on the gills of some fishes.

ASELLUS, in entomology, a species of the oniscus genus; of an oval shape, with an obtuse tail, furnished with two styles. It delights in moist places, under stones, in damp and rotten wood, &c. The young are contained in a four-valved receptacle, under the abdomen of the female. This is commonly known by the name of the wood louse.

ASELLUS, in conchology, a species of chiton, most frequently found adhering to the mytilus modielus. The shell consists of eight valves, very black, with a yellow spot on each valve, convex above; also a species of cypræa, common about the Madeira islands. It is white, with three brown bands bordered with yellow or red.

ASENATH, the daughter of Potipherah, priest or prince of On, and wife of Joseph, prime minister to Pharaoh king of Egypt. See Genesis xli. 45.

ASEPTA; in medicine, from *α* negative, and *σηπω*, to putrefy; signifies any thing unputrefied, or unconcocted.

ASGILL (John), a humorous writer, bred to the law, which he practised in Ireland with great success. He was there elected a member of the

house of commons, but was expelled for writing a Treatise on the Possibility of avoiding Death. Being afterwards chosen member for Bramber in Sussex, he was on the same account expelled the parliament of England. After this, he continued thirty years a prisoner in the Mint, Fleet, and King's Bench; during which time he published a multitude of political pamphlets. He died in the King's Bench in 1738, aged above eighty.

ASH', *n.* & *v.* } Ang.-Sax. Asia, asce; dust,
ASH'Y, } ashes. The remains of any
ASH'TUB, } substance which has been
ASH'YPALE. } burnt.

Ye Troyan *ashes*, and last flames of mine,
I cal in witnesse, that at your last fall,
I fled no stroke of any Grekish sword. *Surrey.*

Poor key-cold figure of a holy king!
Pale *ashes* of the house of Lancaster!
Thou bloodless remnant of that royal blood!
Shakspeare.

So that lone bird in fruitful Arabie,
When now her strength and waning life decays,
Upon some aerie rock or mountain high,
In spiced bed, fired by near Phœbus rayes,
Herself and all her crooked age consumes,
Straight from the *ashes*, and those rich perfumes,
A new-born phœnix flies, and widow'd place resumes.
Fletcher's Purple Island.

Porneius next him pac'd, a meagre wight,
Whose leaden eyes sunk deep in swimming head,
And joyless look, like some pale *ashy* sprite,
Seem'd as he were dying, or now dead. *Id.*

His *ashy* coat that bore a gloss so fair,
So often kiss'd of the enamour'd air,
Worn all to rags, and fretted so with rust,
That with his feet he trod it into dust.
Drayton's Poems. The Owl.

Ah! leave me not for Grecian dogs to tear;
The common rites of sepulture bestow,
To soothe a father's and a mother's woe;
Let their large gifts procure an urn at least,
And Hector's *ashes* in his country rest. *Pope.*

To great Laertes I bequeath
A task of grief, his ornaments of death;
Lest, when the fates his royal *ashes* claim,
The Grecian matrons taint my spotless name. *Id.*

ASH, } Of doubtful etymology. Todd's
ASH'EN. } Johnson gives ære, a tree.

There sawe I eke the fresh hauthorne,
In white motley that so swote doth smell,
Asshe, firre, and oke with many a young acorn,
And many a tree mo than I can tell.
Chaucer. The Complaint of the Black Knight, f. 271. c. 1.

For whan we may not don, than wol we speken,
Yet in our *ashen* cold is fire yreken.
Id. The Reve's Prologue, v. i. p. 153.

As from some far seen mountain's airy crown,
Subdu'd by steel a tall *ash* tumbles down,
And soils its verdant tresses on the ground;
So falls the youth; his arms the fall resound.
Pope. Iliad.

Then exercise thy sturdy steers to plough
Betwixt thy vines, and teach the feeble row
To mount on reeds, and wands, and upward led
On *ashy* poles, to raise their forky head.
Dryden's Virgil, Georg. ii.

ASH (John), L.L.D. a baptist minister, born in 1724; was at one period coadjutor with Dr. Caleb Evans in the management of the Bristol academy, and subsequently pastor of a congregation at Pershore, where he died in 1779. Besides several religious publications, he was the author of a Dictionary of the English language; and an Introduction to Lowth's Grammar, which has passed through a great number of editions.

ASHA'ME, } Found in all the Northern
ASHA'MED. } languages. It has perhaps a literal affinity to αισχυνω, to blush, to redden; although, according to our usage, it means the feeling that occasions the blush; to feel shame. See SHAME.

And whanne he seide these thingis alle his aduersaries weren *ashamed*: and al the puple joyede in alle thingis: that weren gloriously don of him.
Wiclif. Luk. c. 13.

Some men seem to be *ashamed* of those things which would be their glory, whilst others glory in their *shame*. *Mason on Self-knowledge.*

Ye only can engage the servile brood
Of levity and lust, who all their days
Ashamed of truth and liberty have woo'd,
And hug'd the chain that glittering on their gaze,
Seems to outshine the pomp of heaven's empyreal blaze. *Beattie's Minstrel.*

The modest speaker is *asham'd* and griev'd
T'engross a moment's notice, and yet begs,
Begs a propitious ear for his poor thoughts,
However trivial all that he conceives.
Cowper's Task.

ASHANTEE.

ASHANTEE, a native kingdom of the Gold Coast of Africa, and an important power in the neighbourhood of our settlements on the western coast. It appears to be far superior in civilisation, commerce, and general resources, to any known African state. The predominance of this power indeed has, within the last ten years, entirely altered the political aspect of the coast. It is well known that our late excellent and intrepid commander on this coast, and at Sierra Leone (Sir Charles Macarthy), lost his life in a fruitless attempt to drive back a considerable force of the Ashantees from the Gold Coast. A late war between the Fantees and the king of Ashantee first brought the latter country to the knowledge of Europeans. The Fantees had long plundered the Ashantee merchants, and treated with contempt the remonstrances of that kingdom, till at last the Ashantees over-ran the country, entirely reduced the Fantees, and besieged the British settlement. A mission was now therefore sent to the king of Ashantee, to conciliate his good-will toward this country, to obtain, if possible, an extension of commerce, and to gain a knowledge of that kingdom, and the adjacent countries.

ASHANTEE, according to the elaborate account of Mr. Bowdich, employed on this mission, is situated at a distance from the coast, on the west of Dahomy, and nearly in the longitude of the central parts of England. Its extent is supposed to be great, though still imperfectly known to Europeans, and must, indeed, be so in a great measure to the inhabitants themselves. Where

no records are kept, and the communications are only received from those who levy the tribute, no great accuracy can be expected, either as it relates to extent of country or number of inhabitants. It spreads principally over a wide space westward and towards the interior. Ashantee Proper does not border on the coast which is occupied by the tributary countries. The surface of this country is variegated, but the cultivation is partial, and much of it is over-run with forests of brush-wood, and the luxuriance of a tropical vegetation. A river called the Volta is formed of two streams which intersect the Ashantee territory. South-east of Coomassie, the capital, a small lake is laid down in Mr. Bowdich's map. No means of ascertaining the population presented itself to the members of the mission, but by that of the military force. Of this they give the following, as the most moderate estimate received:

Coomassie district, extending to the northern frontier	60,000
Dwabin ditto	35,000
Morpon ditto	15,000
Soota ditto	15,000
Kakoofoo ditto	15,000
Beequa ditto	12,000
Adiabin ditto (between Coomassie and the lake)	12,000
Aphwagwiasee ditto	10,000
Daniasee ditto (southward of Coomassie)	8,000
Koontarasie ditto (on the lake)	8,000
Gomasie ditto	8,000
Amafas ditto	8,000
	206,000

The Ashantees being a nation of warriors, this statement may amount to nearly one-fifth of the whole population, which will, therefore, be about one million. The area of Ashantee Proper is estimated by the same writer at 14,000 square miles, which is consequently about seventy-one persons to each; a population rather greater than that of Scotland. The climate of Ashantee is colder than that of Cape Coast. During May and June, the first two months that the mission was at Coomassie, it rained about one-third of the time; in July and August, it rained nearly half, and violent tornadoes, ushered in by strong winds from the south-west, were frequent after sun-set. The heaviest rains fell from the latter end of September to the beginning of November, when they descended in more impetuous torrents than are usual on the coast. On the second of May Fahrenheit's thermometer rose to 91°, and the following day, at twelve o'clock, it was 89°. From the 7th to the 14th of June, it varied at Coomassie from 80° to 85°. It appears that the general temperature of Coomassie, during the hottest part of the day, is between 70° and 84°.

The agriculture and products are similar to those of other parts of south-west Africa. The soil is chiefly a light loam, and the only agricultural instrument is the hoe. Their plantations have much the appearance of hop-grounds, are well formed and regularly planted; a hut being erected at each wicker-gate where a slave and his family generally reside. They grow two crops of corn a year; plant their yams about Christmas, and dig them up in September. They also cultivate rice, sugar-canes, a mucilaginous vegetable, called encruma, resembling asparagus, pepper, vegetable butter, oranges, papaws, pine-apples, and bananas. Fine cotton also grows spontaneously in Ashantee. The cattle seen by the embassy were as large as those in England. The horses are small, and the Ashantees bad horsemen. The Moors sometimes ride oxen with rings through their noses. The sheep are covered with hair. Among the wild animals are lions, panthers, elephants, hyænas, goats, deer, and antelopes; besides abundance of the monkey species: of these, the simia diana, is much admired for the beauty of its skin. The alligator, rhinoceros, and hippopotamus, are also met with; among the birds vultures are numerous, as well as pigeons, crows, and parrots. Various singing birds were likewise seen. Ashantee either is not a mineral country, or the inhabitants cannot avail themselves of its treasures, as the gold and other metals are imported. Iron-stone, however, is found in several places, and particularly in the neighbourhood of Coomassie, the metropolis, which is built upon the side of a large rocky hill, and is insulated by a marsh northward. This marsh contracts into a narrow stream on the southern and eastern sides, and supplies the town with water. Around the town is a beautiful forest. Coomassie is an oblong of nearly four miles in circuit, not including the suburbs of Assafoo, or Bantama (the black town), half a mile distant, and formerly connected with the streets. Four of the principal of these streets are half a mile long, and from fifty to a hundred yards wide. Mr. Bowdich observed them building one, and a line was stretched on each side to make it regular. The streets are all named, and a superior captain has charge of each. That where the mission resided was called Aperremsoo, great-gun, or cannon-street, because the guns taken when Dankara was conquered, were placed on a mound at the top o it. The Ashantees asserted that the entire population of Coomassie exceeded 100,000; and Mr. B. says, that on festivals, when the people were collected, he compared the crowds to those he had seen in the secondary cities of England. The higher classes support their numerous followers, and the lower their large families, in plantations within two or three miles of the capital. Mr. B. thinks the average resident population of Coomassie, exclusive of those of the surrounding crooms, does not exceed 15,000 There are two markets held daily, from abou eight o'clock in the morning till sunset, where the articles exhibited for sale, are beef and mutton, hogs, deer, and monkey's flesh; fowls, with the vegetable products of the country; salt and dried fish from the coast, large snails smoke-dried, and stuck in rows on small sticks in the form of herring-bone; eggs for fetish, palm-wine, rum, pipes, beads, looking-glasses, sandals, silk and cotton cloth, gunpowder, small pillows, white and blue cotton thread, calabashes, &c. Provincial capitals, and other large towns of the

interior, were spoken of to the gentlemen of the mission, but were little known, it appeared, at the capital.

The king's love of justice is esteemed by his courtiers as his chief virtue. They have no ideas of extending their influence by civil policy. The cefoceers, or military captains, accordingly form the lowest grade of the constitution, over whom are placed the heads of but four families, which form a sort of aristocracy, and, with the king, complete the three estates of this kingdom. In exercising his judicial authority, or in laying the basis of a new law or measure, the king always retires in private to consult these four chief dignitaries; but every law is announced publicly to them as well as to the assembly of captains, as the arbitrary pleasure of the king. On state emergencies only, are the latter assembled distinctly, or to give publicity to some new law. The Ashantees are fully capable of vindicating this constitution by argument, according to the testimony of our officers who visited the court of Coomassie; indeed, no system of government would seem better suited to their habits and propensities. The captains are made responsible, in a great degree, for the issue of their own advice with respect to war or peace; we only wish we could add, that in their mode of conducting hostilities, they were as humane as they are energetic and skilful.

In this respect, they are still barbarous in the highest degree. They rarely give quarter in a general action, and a distinct body of recruits follows the army to despatch with knives those who are wounded with a musket, and return with the personal spoil of the enemy. They even make a practice of cutting out the hearts of some of the slain, which they mix up with consecrated herbs, and after much ceremony and incantation, compel those who have never before killed an enemy, to eat part of the horrible portion. Of the heart of a celebrated enemy, the king and his dignitaries are said to partake; and their most warlike generals are distinguished by names descriptive of their peculiar modes of despatching or torturing their enemies. Thus, Apokon, the king, is called Aboâwessa, because he has been in the habit of cutting off their arms; Appia, Sheaboo, because he beats their heads in pieces with a stone; and Amanqua, Abiniowa, because he cuts off their legs. Sir Charles M'Carthy, it is feared, was despatched by these barbarians in this cruel manner.

The last power subdued, or the revolters recently quelled, are always compelled by the Ashantees to form the van of their army; the youngest captain marches first, and all the authorities in gradation of rank and seniority up to the king. The superior discipline and courage of their soldiery were in a moment perceptible, when they appeared in conflict with the people of the coast before Annamaboe; but the following are said to be the only maxims to which this is to be attributed: They never pursue an enemy at or near sunset; the general is always in the rear, the secondary captains lead the soldiers on, while the chiefs of divisions, surrounded by a few select followers, urge them forward with heavy swords, and cut down every man who retreats, until the conflict is desperate. In close fight, the principal effort of the Ashantee is to fire, and then spring upon the throat of his enemy. The most popular song of the capital, has a sort of chorus to this effect: 'If I fight I die, if I run away I die, better I go on and die.'

At the Yam Custom, an annual festival, and at the death of their great men, hundreds of human victims are said to be regularly sacrificed, and the sculls and other bones of their enemies are exhibited in their armoury, and as the ornaments of their state apartments. At all their great festivals and funerals, indeed, the slaughter of human beings is horribly frequent. Some of the former occur once in three weeks, when 100 are sometimes immolated. It should be observed, however, that these are often convicts. The king celebrated the death of his mother by the sacrifice of 3000 victims; and the funeral rites of a great caboceer were repeated at intervals for three months, during which 2400 persons were butchered.

According to the religious belief of the Ashantees, there are two distinct orders of gods; one of which, the higher order, takes care of the whites, the other of the blacks; they are believers in the immortality of the soul, and both their princes and nobility are supposed to enjoy the presence of the higher order of their deities after death. Here they regale themselves in epicurean indulgence, and have cooks and butlers after the fashion of their country. Persons of this description are, therefore, buried with their great men, whose reception in another world is supposed to be greatly regulated by the number of attendants with which they appear. The Ashantees have also two sets of priests; one class being devoted to the services of their temples and to preserving a communication with their deities, and the other class a sort of conjurors, and detectors of small theft. Every housekeeper also has his domestic gods and charms, bought of these cunning men. Polygamy is universally allowed, and the king claims the royal number of 3333 wives, which is regularly kept up; the ladies living in round enclosures, 'like pheasants in a park.'

A peculiar feature in the law of succession obtains in this country, and is binding from the royal family downwards. The brothers' children are always set aside in favor of sisters' children, on the ground that if the sons' wives are faithless, the blood of a family is lost in the offspring; but should the daughters deceive their husbands the father's blood is still preserved; thus, the sisters of the king are allowed to intrigue or marry with any personable man. The king is heir to all the gold of any subject, and contributes to the funeral rites to assert his claim; the successor paying the debts of the deceased. Slaves, if ill treated, may transfer themselves from one master to another. They are a great article of traffic here, and the domestic drudges, of course, of the country. No topic appeared so inexplicable to the king as that of the British motives for abolishing the slave-trade. The slaves of an ally or tributary are scrupulously restored; those of an indifferent or enemy's

country may become free subjects of the state. An appeal lies for the subjects of any tributary power to the laws, and ultimately to the king of Ashantee.

Cowardice, treason, the murder of an equal, and some cases of adultery, are punishable with death, as are false accusations of treason. A great man killing his equal, is generally afterwards allowed to kill himself as a punishment; but the death of an inferior is compensated by a fine, paid to the family, of the value of seven slaves. Serious thefts are punished with a compensation inflicted on the family of the accused, who alone are suffered to punish him; but this they may do even capitally, if he be incorrigible. Trifling thefts are visited on the offender by exposing him at various parts of the town, and proclaiming his crime before him. But all vexatious suits and accusations are discouraged and punished. Polygamy is allowed to all ranks, but the wife's property is distinct from that of her husband, and the king is the heir of it. None but a captain can put his wife to death for infidelity, and even then he is expected to accept a liberal offer of gold for her redemption. To intrigue with the king's wives is death. If the family of a woman, on her complaint of ill-treatment, choose to tender to a man his marriage-fee, he must accept it; and the wife returns to her father's house, but can no more marry. 'The most entertaining delassement of our conversation,' says Mr. Bowdich, 'with the chiefs, was to introduce the liberty of English females; whom we represented, not only to possess the advantage of engaging the sole affection of a husband, but the more enviable privilege of choosing that husband for herself. The effect was truly comic; the women sidled up to wipe the dust from our shoes with their clothes, at the end of every sentence brushed off an insect, or picked a burr from our trowsers; the husbands expressing their dislike by a laugh, would put their hands before our mouths, declaring that they did not want to hear that palaver any more, abruptly changed the subject to war, and ordered the women to the harem.'

The foreign trade of Ashantee is regulated by the government, so far as to interdict commerce with any unfriendly power. It is in every other respect left free, though not much encouraged. The slaves of the capital are generally a part of the annual tribute of the neighbouring powers; but many are kidnapped throughout the country. They fetch but a trifle; but it is the most lucrative branch of their commerce with the coast; and the continuance of it under other flags, particularly the Spanish, while the British are prohibited from engaging in it, is represented by the intelligent writer, to whom we have been already so much indebted, as the most stubborn impediment to the negociations which he had to conduct at Ashantee. 'It not only injures the British commerce here,' says Mr. B. 'almost to annihilation; but, slavery being the natural trade of the natives, because it is the most indolent and the most lucrative, the opposition, which is insinuated and believed to proceed from the English alone, conveys a disagreeable impression of us to the interior, as inauspicious to our intercourse and progress, as the even partial continuance of such a trade is to legitimate commerce and civilisation. One thousand slaves left Ashantee, for two Spanish schooners, or Americans under that flag, to our knowledge, during our residence there; doubtless the whole number was much greater. Since our return it must have been very considerable, for the slave trade was never more brisk than it is at this moment, under the cloak of the Spanish flag; and great risk has been incurred, in consequence, of offending our new friend and formidable neighbour, the king of Ashantee, from the firm resistance of his strong entreaties to the governor-in-chief to allow the return of a powerful mulatto slave-trader to Cape Coast Town, whence he had been expelled under the present governor, as the most daring promoter of that commerce.' How urgently does this press upon government, by all legitimate means, to urge the universal abolition of this accursed traffic! It is but 'crippled,' as this writer well remarks, at present, 'at the expense of our own interests and views in the interior; and, which is worse, of the happiness and improvement of the natives.'

Gold was seen everywhere in great abundance by the British emissaries; and the court of Coomassie, in silks, stuffs, cloths, and cottons, of every hue, was most imposing. Some of the captains wore ornaments of solid gold on their wrists, so large as to tire the hand, which rested on the head of a young slave. The tops of immense umbrellas were decorated with golden heads of pelicans, panthers, baboons, &c. as large as life.

Guns and gunpowder are never allowed to be exported from Ashantee; and the people in general have no idea of buying any thing but for the purpose of consumption, except a small number of articles of which they can make a profitable barter for tobacco, cloth, and silk, in the Inta and Dagwumba markets. Their situation bids fair, however, for their becoming the complete brokers between the interior and the European nations.

We subjoin a table of the most material articles of commerce between our settlement at Cape Coast Castle and the Coomassie market, and the profit they will yield, according to Mr. Bowdich, at the latter:

CAPE COAST.					COOMASSIE.				
Articles.	£.	s.	.	Quantity.	£.	s.	d.	Quantity.	Profit per cent.
1 Cushions	—	—	—	———	1	0	0	each.	100
2 Dagwumba white cotton	—	—	—	———	0	5	0	square yard.	100
3 Flints	0	5	0	100	0	0	½	each.	600
4 Glasgow Dane	1	10	0	per piece.	0	5	0	per handkerchief.	75
5 Guinea stuff	0	10	0	do.	0	15	0	———	50
6 Gunpowder	4	0	0	½ barrel.	0	0	7½	per charge.	400
7 Iron	1	0	0	bar.	1	15	0	bar.	75
8 Lead	0	10	0	———	0	0	7½	½ inch.	75
9 Locks (Marrowa)	—	—	—	———	0	5	0	each.	100
10 Romal	1	0	0	per piece.	1	5	0	piece.	20
11 Rum	0	10	0	gallon.	0	0	7½	dram.	400
12 Sandals	—	—	—	———	0	10	0	pair.	100
13 Sarstracunda	0	10	0	piece.	0	2	6	per span.*	400
14 Silesia	1	10	0	do.	0	15	0	piece.	50
15 Silk, India	4	0	0	do.	0	5	0	per span.	175
16 —— Fezzan	—	—	—	———	2	0	0	per fathom.	100
17 Spanish dollars	0	5	0	———	0	5	0	———	—
18 Tobacco, Portuguese	6	0	0	Roll.	10	0	0	roll.	75
19 ——— Inta	—	—	—	———	0	2	6	lb.	150

* The span is about nine inches long; the fathom eight spans.

Gold dust is the currency of Ashantee, worth about £4 English an ounce. That of the neighbouring kingdoms of Inta, Dagwumba, Gaman, and Kong, is reckoned in cowries, of which five strings, or 200, make a tokoo; eight tokoos an ackie; and sixteen ackies an ounce.

Mr. Bowdich recommends that a British settlement should be attempted up the Volta, which is navigable within four days' journey of Sallagha, the capital of Inta, east of which, and on the banks of Laka river, connected with the Volta, is the kingdom of Dagwumba. These tributary nations to Ashantee are far more commercial in their policy than that state; and, as far as they have become known to us, more civilised. They give exorbitant prices to the Ashantees for rum, iron, &c. Silks, Manchester cloths, and cottons, would find a market in the same direction.

In their architecture the Ashantees have claims to surprising neatness, and even elegance. Although the walls are of mud, every house in Coomassie has its regular gable ends, from which three poles are projected, i. e. from end to end, forming the point and bottom of the roof on each side; in which a frame of bamboo work supports an interwoven thatch of palm leaves, tied with the runners of trees. Within, the bamboo work is painted black and polished, so as to form a sort of chequered and tasty ceiling. The pillars that assist to support the roof, and form the open front of the superior houses, are squared pieces of timber, covered with plastering, and often ornamented with fluting, quarter-foil, and the lozenge and gable ornaments of the Normans. The steps and raised floors of these houses are clay and stone, covered with a layer of red earth which has the appearance of ochre. Arcades and piazzas abound everywhere in the capital. The doors are generally an entire piece of the cotton wood; the windows open wood work, carved in fantastic shapes, and painted red; the frames being frequently cased in gold as thick as cartridge paper. Mr. Bowdich was agreeably surprised to find every house have its cloaca in some retired and arched corner, besides the common ones about the town for the lower orders. The holes, he says, are dug to a surprising depth, and boiling water is poured down them every day. The rubbish and offal of the houses is burnt every morning in the back of the street. In their persons, and in all their domestic economy, the Ashantees are also patterns of cleanliness.

They manufacture cloths of exquisite fineness and brilliancy of color, sometimes unravelling the finest silks, to weave them into them. They paint on white cloths; and dye with considerable skill, particularly leather; in pottery, blacksmith's work, tanning and dressing leather, they also excel. They will buy British cottons for the sake of a favorite stripe (generally the red), and cutting away the other parts, weave it up into their own cloths, which alone are worn as articles of dress.

ASHBORN, or ASHBOURNE, a town in Derbyshire, on the borders of Staffordshire, between the rivers Dove and Compton, thirteen miles from Derby, and 139 N. N. W. from London. It has a stone bridge over the Dove; an ancient church with a fine spire; and a free school, founded by citizens of London, natives of the place. Its trade in malt and cheese is consider-

able. A weekly market is held here, and several annual fairs. Population 2112.

ASHBURNHAM, a post town of the United States, in Worcester county, Massachusetts, on the west side of the river Sowhegan, forty-five miles north-west of Boston.

ASHBURTON, a town in Devonshire, seated on the river Dart, ten miles from Totness, nineteen south-west of Exeter, and 192 west by south of London. It carries on a considerable trade, in wool, yarn, and serges; has markets on Tuesday and Saturday, and fairs on the first Thursday of March and June, and on the 10th August and 11th November. It sends two members to parliament, and is one of the four stannary towns. It is seated among the hills, which abound in tin and copper; and has a very handsome church, with a chapel, which is used as a school. Population about 3000.

ASHBY DE LA ZOUCH, a market town of Leicestershire, so called from the Zouches, its ancient lords, 13 miles south of Derby, 15 from Leicester, and 115 from London. It has seven annual fairs. It long had a castle, which was in the possession of the family de la Zouch. It afterwards fell into the hands of Edward IV. who granted it to Sir Edward Hastings, with the title of a baron, and license to make a castle of the manor-house, to which he adjoined a very high tower. James I. and his whole court were once entertained here by the Earl of Huntingdon. It was demolished in 1648. Malting, and the manufacture of hats and cotton, flourish here. Population upwards of 3000. In the neighbourhood is a mineral water called Griffydam.

ASHDOWN, a town of Essex, anciently called Assandun, or the hill of asses, famous for the defeat of Edmund Ironside, by Canute the Dane.

ASHER; אשר, Heb. i. e. blessedness; one of Jacob's sons by Zilpah, and the progenitor of the tribe so called.

ASHEREF, or ASHRAFF, a town of Persia, in the Mazanderan province, half a mile from a large bay, the best harbour on the south side of the Caspian. Shah Abbas built a superb palace here, surrounded by fine gardens, remarkable for the number of their orange trees. This palace is now falling to ruins. Distant fifteen miles from Fehrabad, and sixteen from Sari.

ASHES, among the ancient Persians, were used as an instrument of punishment for some great criminals. The criminal was thrown head-long from a tower fifty cubits high, which was filled with ashes to a particular height, 2 Mac. xiii. 5, 6. The motion which the criminal used to disengage himself from this place, plunged him still deeper into it, and this agitation was farther increased by a wheel which stirred the ashes continually about him, till at last he was stifled.

ASHES, in chemistry, are the earthy particles of combustible substances after they have been burnt. If the ashes are produced from vegetable bodies, they contain a considerable quantity of fixed salt, blended with the terrene particles: and from these the fixed alkaline salts called potash, pearl-ash, &c. are extracted. See POTASH, &c. The ashes of all vegetables are vitrifiable, and found to contain iron. They are also an excellent manure for cold and wet grounds. See HUSBANDRY.

ASHES were anciently used in several religious ceremonies. St. Jerome relates that the Jews in his time rolled themselves in ashes, as a sign of mourning. To repent in sackloth and ashes is a frequent expression in Scripture for mourning and being afflicted for our sins. There was a sort of lye and lustral water made with the ashes of an heifer sacrificed upon the great day of expiation; the ashes whereof were distributed to the people, and this water was used in purifications as often as any touched a dead body, or was present at funerals, Num. xix. 17.

ASH-FIRE, among chemists, a fire wherein the vessel to be heated is covered with ashes or sand.

ASHI, a prince of Norway, said to have been slain by Fingal, the father of Ossian, at a place of Invernesshire, ever since named Drumashi, or Ashi's Hill.

ASHIMA, an idol of the Samaritans, 2 Kings xvii. 30, said to have been formed like a lion or a goat, and to have represented the sun.

ASHING-KEY, a low island on the Spanish main, on the Mosquito shore.

ASHIPOO, a river of North America, in South Carolina, which runs into the Atlantic. Long. 80° 30′ W., lat. 32° 25′ N. Also a town of the same name situated on the banks of this river.

ASHLAR, in masonry, free-stones as they come out of the quarry, of different lengths, generally applied to slabs of stone, from six to nine inches in thickness, used for facing brick buildings, worked in imitation of regular courses of solid masonry.

ASHLER, or ASHLERING, quartering of timber about three feet high, placed perpendicularly from the floor of the attic story, to the roof to obviate the useless angle formed by the junction of the roof and the floor.

ASHLEY, a river of South Carolina, rising in Cypress swamp, and emptying itself into the Cooper just below Charleston. Its breadth opposite Charleston is about 2100 yards, and its stream narrows but little for several miles. On the western bank of this river the first efficient settlement of the state was made at a place now called Old Town, or Old Charleston, in 1671. Also a river of West Florida, which runs into the Gulf of Mexico.

ASHMOLE (Elias), a celebrated antiquary and herald, founder of the Ashmolean Museum at Oxford, was born at Litchfield, in Staffordshire, 1617. He first practised in the law: in the civil war he had a captain's commission, and was also comptroller of the ordnance under Charles I. In 1649 he settled at London; where his house was frequented by most of the learned men of the age, and a depository of many literary treasures. In 1650 he published a treatise written by Dr. Arthur Dee, relating to the philosopher's stone; with another tract on the same subject by an unknown author. About the same time he was busied in preparing for the press a complete collection of the works of such English chemists, or alchemists rather, as had till then remained in manuscript. This undertaking cost him great labor and expense; but at length the work appeared towards the close of

the year 1652, under the title of Theatricum Chymicum Britannicum. He proposed at first to have carried it on to several volumes; but afterwards dropped this design, and applied himself to the study of antiquity and records. He was at great pains to trace the Roman road, which in Antoninus's Itinerary is called Bennevanna, from Weedon to Litchfield. In 1658 he began to collect materials for his celebrated history of the Order of the Garter. In September following he made a journey to Oxford, where he commenced his full and particular description of the coins presented to the public library by archbishop Laud. Upon the restoration, Mr. Ashmole was introduced to king Charles II. who bestowed on him the place of Windsor Herald. Soon after he appointed him to give a description of his medals, which were accordingly delivered into his possession, and king Henry VIIIth's closet was assigned for his use. Mr. Ashmole was afterwards admitted a fellow of the Royal Society; and the king appointed him secretary of Surinam, in the West Indies. On the 19th July 1669, the University of Oxford, in consideration of the many favors they had received from Mr. Ashmole, created him M. D. by diploma. In May 1672 he presented his Institution, Laws, and Ceremonies of the Order of the Garter, to the king, who, as a mark of his approbation granted him £400 out of the custom on paper. On the 26th January, 1679, a fire broke out in the Middle Temple, in the next chamber to Mr. Ashmole's, by which he lost a noble library, with a collection of 9000 coins, ancient and modern, and a vast repository of seals, charters, and other antiquities and curiosities; but his manuscripts, and his most valuable gold medals, were luckily at his house at Lambeth. In 1683, the University of Oxford having finished a magnificent repository near the theatre, Mr. Ashmole sent thither his collection of rarities; which benefaction was augmented by the addition of his manuscripts and library at his death, which happened at Lambeth, May 18, 1692, in the 76th year of his age. Besides the works above mentioned, Mr. Ashmole left several which were published since his death, and some which still remain in manuscript.

ASHMOT, the principal part of the Isle Madame, dependent on the island of Cape Breton.

ASHO'RE. On shore. Ang.-Sax. sciran, to shear, cut, divide, separate. See SHORE.

> Sweare then how thou escap'dst.
> Swum *ashore* man like a ducke! *Shakspeare.*
>
> ——— For now the flowing tide,
> Had brought the body nearer to the side;
> The more she looks, the more her fears increase,
> At nearer sight; and she's herself the less:
> Now driv'n *ashore*, and at her feet it lies,
> She knows too much in knowing whom she sees.
> Her husband's corpse. *Dryden's Fables.*
>
> [He] Then with his dire associates through the deep,
> For spoil and slaughter guides the savage prow,
> Him dogs will rend *ashore*.
> *Glover's Leonidas*, book xii. p. 77.
>
> Thus while their cordage stretch'd *ashore* may guide,
> Our brave companions thro' the swelling tide;
> This floating lumber shall sustain them o'er
> The rocky shelves, in safety to the shore.
> *Falconer's Shipwreck.*
>
> Storms rise t' o'erwhelm him: or if stormy winds
> Rise not, the waters of the deep shall rise
> And needing no assistance of the storm,
> Shall roll themselves ashore and reach him there.
> *Cowper's Poems.*

ASHTAROTH, ASHTORETH; אשתרות, Heb. i. e. flocks, or riches; or ASTARTE, the chief goddess of the Sidonians and Phœnicians, called also the Queen of Heaven, and reckoned the same with the JUNO of the Greeks and Romans. Cicero, however, calls her the Venus of Syria, wherein he is certainly justified by her mode of worship; which, like that of the Grecian Venus, abounded in all manner of debauchery. The Israelites in all their relapses to idolatry showed a great fondness for her worship. Solomon himself in his dotage sacrificed to her. She was represented in various habits, encircled with rays, &c. We find a place named after her in the days of Abraham; Gen. xiv. 5.

ASHTON (Charles), an antiquarian and one of the most learned critics of his age, was elected master of Jesus College, Cambridge, July 5th 1701, and installed prebend of Ely, on the 14th. His skill in ecclesiastical antiquities was equalled by few.

ASHTON (Dr. Thomas), a native of Eton, studied at Cambridge, in 1733, was successively rector of Aldingham, Starminster, and St. Botolph, Bishopsgate. In 1759 he took his degree of D. D.; and in May 1762 was elected preacher at Lincoln's Inn, which he resigned in 1764. He died in 1775, aged fifty-nine. He published, 1. A volume of Sermons. 2. A Dissertation on II. Peter, i. 19. 3. A letter to the Rev. Mr. Jones. 4 & 5. Two Letters to Dr. Morell, on Electing Aliens into places in Eton College; and 6. An Extract from the case of the Obligation of Electors, &c.

ASHTON-UNDER-LINE, a town and parish of England, on the river Tame, in the county of Lancaster, in which considerable manufactures are carried on. Several villages are contained in this parish, the whole population of which amounts to 19,052. It is distant about 196 miles from London.

ASHUR, אשור, Heb. i. e. blessed, the son of Shem, and progenitor of the Assyrians.

ASH-WEDNESDAY, the first day of Lent, so called from the ancient custom of sprinkling ashes on the head.

ASHWELL (George), rector of Hanwell, son of Robert Ashwell of Harrow, was born at London in 1612, and admitted in Wadham College, Oxford, in 1627, where he took his degrees of A. M. and B. D. and was elected a fellow and tutor. During the rebellion he preached several times before the king and parliament. He died at Hanwell, in 1693, with the character of a religious, learned, and peaceable divine. He wrote, 1. A discourse, asserting the received authors, and authority of the Apostle's Creed. Oxon. 1653. 2. A double Appendix, touching the Athanasian and Nicene Creeds. 3. On the Gesture at receiving the Sacrament, 1663. 4. A Treatise concerning Socinus, and the Socinian Heresy. 5. A Dissertation on the Church of Rome. Ox. 1618. And an answer to Plato Redivivus; besides translations.

A S I A.

ASIA, in geography, one of the great divisions of the earth, lies to the east and south-east of Europe. North and south it stretches from about 2° to 77° of north latitude. East and west it extends from about 26° east, to 170° west longitude. Its northern capes penetrate the ice of the polar regions, while its southern promontories approach nearly to the centre of the torrid zone. Its greatest length in this direction is taken at something more than 5200 English miles from east to west. The extent of this continent from the western shores of Natolia, to East Cape in Siberia, has been calculated in a late popular work at 7580 miles

Boundaries.—It is bounded on the north and south by the Arctic and Indian Oceans; on the east by the Pacific Ocean and the Chinese Sea; and on the west by the Arabian gulf, the Isthmus of Suez, the Mediterranean, the Archipelago, the straits of Gallipoli, the sea of Marmora, the Bosphorus, and the Black Sea, whence to the Arctic Ocean the boundary which separates Asia from the east of Europe is not distinctly ascertained. It is, however, supposed to be constituted by the rivers Don and the Karposca, one of its tributary streams rising near Sarepta, the course of which is to be continued by an imaginary line between the 40°th and 50°th of east longitude.

Islands.—The islands belonging to Asia are the Prince's Islands near Constantinople, Mitylene, Scio, Samos, Cos, Rhodes, Cyprus, &c. in the Archipelago. Bahrein on the Arabian side of the Persian gulf noted for its pearl fishery. The Laccadive, Maldive islands, and Ceylon in the Indian Ocean, contiguous to the peninsula of Hindostan East of the Bay of Bengal lies the Indian Archipelago, consisting of numerous different groups of islands including the Andaman and Nicobar islands, the Sunda isles, Sumatra, Java, and Borneo; the Moluccas or Spice islands, Papua or New Guinea, Solomon's isles, Queen Charlotte's isles, and the New Hebrides; which bending in a circular direction to the south-east lead us to the two islands of New Zealand. New Holland, to the south of New Guinea, is the largest island in the world, and contains an area larger than all Europe. East of the New Hebrides lie the South Sea islands. North of New Guinea are the New Carolinas and the Marianne or Ladrone islands. West of them are the Manillas or Philippine islands, and the Mindanas or Magindanas north of the Moluccas. Immediately above Luzon is the Isle of Formosa. East of Formosa in the Chinese sea lie the Lieù-Kieù, or Lùtchù islands. Still farther northward we have Nison and other islands which together form the kingdom of Japan; from which proceed the Kuriles, consisting of numerous groups of little islands, extending in a chain from the isles of Japan to Cape Lopatka, the southern extremity of Kamtschatka. West of these on the coast of Tartary lie Saghalien and other islands. A little distant from Kamtschatka are the Aleutian or Fox islands, proceeding in a curved line to the opposite extremity of America. Nova Zembla is also by some geographers considered as an Asiatic island, and lies to the north-west of Siberia. The islands of Ramisseram and Manar are curiously connected by a singular ridge of rocks called Adam's Bridge. It is nevertheless proper to observe that the best of later geographers, concurring in the opinion of the learned president des Brosses, have separated a vast number of the islands, formerly considered as Asiatic islands, from that continent, and arranged them with a number of other countries and islands to the south of Asia, and in the Pacific Ocean, under the two divisions of Australasia and Polynesia. The grounds of the new arrangement are explained with sufficient clearness by Mr. Pinkerton in his introductory observations on the Asiatic islands.

Seas and Waters.—Besides the great oceans which wash three sides of this celebrated quarter of the globe, there are numerous gulfs, bays, and inland seas which have greatly contributed to its fertility and civilisation. The Red sea or Arabian gulf, called the Weedy sea by the Hebrews, forms the grand natural division between Asia and Africa. Its length calculated from the straits of Babelmandel to the isthmus of Suez, is about 1470 English miles, and its medial breadth 140 miles. It terminates at the upper extremity, in two great branches, of which the western, by several miles the longer, is celebrated for the passage of the Israelites in the month Nisan, B. C. 1497, supposed to have taken place in about 29° 40′ north latitude. The eastern branch extends a little above the parallel of Mount Sinai. The Arabian sea is an appellation applied to the vast bay, included between Arabia and Hindostan, terminating in the Persian gulf, to which it is united by a strait twenty-four miles wide. This gulf stretches to the north-west between Arabia and Persia, containing several islands, and terminates under the same meridian as the Caspian. The deep and extensive Bay of Bengal, spreading from the eastern coast of Hindostan to the opposite shores of the Burman Empire, is separated from the last mentioned sea by the great promontory of the Deccan. This bay forms a magnificent inlet to the central part of southern Asia. At its entrance, which is in the eighth degree of latitude, it exceeds 1300 miles in width, and is 1000 miles from that parallel to its northern extremity, beyond the mouth of the Ganges. The gulf of Siam, on the opposite side of the peninsula of Malacca, separates the territorial projection from the broad rectangular peninsula included in the southern part of the Burman empire. The gulf of Tonquin lies on the south of China; the Yellow sea between China Proper and the gulf of Corea. The straits of Corea eastward lead to the sea of Japan; which stretches through about fifteen degrees of latitude, and divides the Japanese islands from the shores of the continent. This sea decreasing to the north terminates in a channel

leading to the sea of Okotsk which forms a spacious inlet to the south-eastern shores of Siberia, dividing Chinese Tartary from the peninsula of Kamtschatka. From the top of this sea projects a large forked gulf through nearly three degrees of latitude between two chains of magnificent mountains; one on the peninsula and the other on the continent. This gulf, and a bay on the opposite shore, render the conformation of the north-eastern part of Asia, peninsular. The sea of Anadir a few degrees south of Behring's strait forms another inlet to the north-eastern extremity of this continent. A few deep inlets are found on the shores of the Arctic Ocean. Passing from the White sea through the strait of Waygat, between Nova Zembla and the continent, we enter the gulf of Cara, which is divided from the deep gulf of Oby, by a long peninsula. This forms a large opening reaching nearly to the sixty-fifth parallel. The river Yenisei eastward forms itself into a wide estuary before it falls into the sea. The Bay of Tainourskaia, which from its situation is sometimes called the North Gulf, is placed about the seventy-fifth degree of latitude near the northern extremity of the Old World. Numerous other inlets are found along the coast from this point to Behring's strait. The Levant and the Archipelago lie on the western side of Asia, north of the Isthmus of Suez. The Euxine, or Black sea, forms the northern boundary of Anatolia, and is considered for the most part as a detached sea, being united to the Mediterranean only by a small strait, the Bosphorus of the ancients, so narrow as to be called the Canal of Constantinople.

The sea of Marmora, or Propontis, is considered by some an inland sea, and is connected with the Ægean Sea, or Mediterranean Archipelago, by a similar strait called the Dardanelles, or ancient Hellespont. This sea, as well as the Black Sea and Mediterranean, is supposed to have been anciently detached. The Caspian, celebrated for its fisheries, forms the separating boundary, which divides Russia from Persia and independent Tartary. It is of elliptical figure; the major axis extending nearly 700 miles from north to south, and occupying a breadth of nearly 200 geographical miles. It appears to have extended much farther north than it does at present; especially as the deserts in that direction are saline, and sandy, presenting the same kind of shells and marine productions as are found in the waters of the Caspian. Pliny and Strabo supposed this sea to be a gulf of the northern ocean; but it must always have been restricted by the western branch of the Uralian mountains, which passes to the north of Orenburg, reaching to the Volga. Its former union with the Lake Aral is highly probable from the marine deposits found in the intervening steppes, and from the Salt Lake still remaining between them; the midway eminence having been occasioned perhaps by the alluvion from the great rivers which flow into the latter. The Caspian is remarkable for its having no visible outlet for the discharge of its waters, notwithstanding the large rivers that flow into it, and also from the evidences of a former superior elevation being visible in the flanks of the mountains forming its western coasts. M. Pallas imagined he recognised its ancient shores on the steppe, considerably higher than its present level; and has given some particulars on the subject. MM. Engelhardt and Parrot, naturalists from Prussia, who visited this sea in 1815, place the former shores of the Caspian about 350 feet higher than its present surface; where they found gulfs and bays clearly defined. Its islands are mostly uninhabited; its bed is uneven, abounding with shoals, between some of which a line of 450 fathoms has been unsuccessfully employed to reach the bottom. Its waters are less salt than those of the ocean; but have a peculiar bitter taste. It has no tides; but is subject to violent storms. The striking peculiarity of this sea is the difference between its level and that of the Baltic and the Black Sea. From barometical observations made at Astracan, and at St. Petersburgh, during a period of nine years, the Caspian appeared to be 306 feet below that of the Baltic: and from other barometical observations, made between the mouth of the Kuban and that of the Terek, the surface of the Black Sea was found to be 105 metres, or 344.5 feet above the Caspian.

Lake Aral is about 200 miles in length, and seventy in breadth, and about an hundred miles distant from the eastern shores of the Caspian; which, in some respects, it may be said to resemble: it extends in the same direction, and receives the waters of several rivers, but discharges none. The principal rivers that run into it are the Gihon, or Jihon; the Oxus, of antiquity, which enters the southern extremity; the ancient Jaxartes, which reaches it from the east; as also the Aujany, or Kizil Daria. The southern extremity of this lake is sprinkled with numerous islands; and its supplies of water flowing from the south and the east, while those of the Caspian flow from the north and west, evince that they occupy part of the same natural basin. Baikal, another of the great lakes, or inland seas, of Asia, is situated near the southern borders of Siberia, on the northern side of the great chain of mountains which divides that country from Mongolia. This lake, like the former, stretches in the same direction as the Caspian: is 350 miles in length, and nearly forty in breadth. Its waters are fresh and pellucid, presenting however the general appearance of a slight green tinge, and are usually frozen from the beginning of December to the end of April. The depth of this lake varies from twenty to ninety fathoms; but so clear are the waters, that the bottom becomes distinctly visible to the depth of fifty feet. It is subject to violent storms, and is often agitated without any visible cause; whence it has received from the Russians the superstitious name of *Svetoie Marè, Holy Sea.* This lake, although it receives the waters of several copious rivers, has no visible outlet except the lower Angara, the discharge from which is considerably inferior to the accessions which it receives. It is almost surrounded by mountains, in which the existence of subterraneous fire is evident, from frequent shocks of earthquakes; and the surrounding shores are distinguished by some remarkable phenomena.

It has been imagined by many geographers that the northern regions of Asia communicate with the continent of America. This however is a topic on which we have not sufficient data to ground an opinion. Captain Cook certainly traced the separation of these continents, partially: The best information yet obtained on this particular is, that Behring's Strait divides them to about forty miles in breadth, having East Cape on the Asiatic side, and Prince of Wales Cape on the American. The depth of water is about thirty fathoms. Pursuing this strait northward, the Asiatic shore tends rapidly to the west, while the American proceeds nearly due north; till, at the distance of four or five degrees, the two continents are joined by one solid and impenetrable mass of ice.

Mountains.—The mountains of Asia have always been thought remarkable; and, arrayed in all the horrors of perpetual winter, seem to frown in awful silence over the profusion of the vale.

A celebrated writer (M. Walckenaer, in his Cosmologie, p. 105,) observes, 'that the chain of mountains in which the culminating points of the highest level are found, always follows the direction of the greatest dimensions of the continent; and the inferior chains or heights, where we find the culminating points of the second or third-rate levels, also follow the direction of the greatest dilatations of the land, terminating that continent.' In Asia we have an illustration of these observations. The greatest dimensions of the continent are from east to west: and the country from the seventieth to the 100th degree of east longitude, and from the thirtieth to the fiftieth of south latitude, presents nearly a level area, from the different sides of which all the largest rivers flow into the sea. The culminating points of this extensive level, there is reason to believe, are the most elevated spots on the surface of the earth. The included area has been termed the table-land of Asia; although, since the revival of science, it has been inaccessible to European travellers, and therefore little known. The western part of it is, however, mountainous; and the eastern is a vast desert; the Shamo of the Chinese, and the Kobi of the Tartars, exhibiting an extent of several thousand miles not watered by a single stream.

The Altaian mountains are the northern boundaries of this area; the Himálaya, on the south, divide it from Hindostan. On the east is that lofty range in which originates the great rivers of China; and the west is bordered by the mountains which contain the sources of the Indus and Jaxartes. The inferior chains, diverging as radii from this centre, are Múz-dágh or Múz-zárt, 'snowy mountains,' on the north. The Tibetian mountains on the east, the Vind'hya hills and G'hats on the south, and the Alburg or Alborg on the west. The different ranges that traverse the territories of Persia, and unite its north-west provinces to Caucasus on the north, to Taurus and Libanus on the west and south, are connected with the Alburgian chain. Libanus is also connected by the hilly country on the west of Jordan with the mountains of Arabia. The greater number of these inferior chains run from east to west, in the same direction as the central range. The extensive Altaï, or Khattaï chain, stretches across the continent, under different names, for more than 5000 miles, terminating, to the east, in Tchutskoi Ness and cape Lopatka. Of the highest points of this celebrated chain south of Russia, we have no accurate information; but the inferior ranges reach far above the point of perpetual congelation, and are supposed to be equal to the Alps. The Himálaya chain of mountains south of the great central level, rears its loftiest summits 26,000 feet above the level of the sea; and, according to some of our best geographers, upwards of 6000 feet above the celebrated Chimborazo of America, which towers over the entire Cordillera of the Andes. This southern chain is supposed to be of superior elevation to the northern. Mount Kailás, the Olympus of the Hindus, is supposed to exceed even the D'holá-giri in Nipál, which has been proved by admeasuremen to reach 26,400 feet above the level of the sea. Mount Caucasus, the next in point of altitude, is a vast range extending between the Euxine and Caspian seas. Mount Ararat rises southwest of the Caucasus; Libanus, Amanus, and Taurus, are all connected with this great chain; and the latter mount diverging with various branches, occupies almost the whole area from the Euphrates to the sea of Marmora. The Uralian mountains, running from south to north, nearly as far as Nova Zembla, and called by the Tartars the girdle of the earth, are much colder, in consequence of a higher latitude; but are inferior to the above in point of elevation.

Many volcanoes are in a constant state of activity throughout Asia; and many which were volcanic in former times, are now extinct, although smoke still issues, and hot streams are frequently discharged from crevices in their sides The insular regions of Asia are likewise mountainous, and Adam's Peak, in Ceylon, has been a remarkable subject of tradition and fable. Volcanoes are also found in most of the Asiatic islands; Gúnong-ápi is one of the most active now known; of that near Brambanan, in Java, a violent eruption is recorded in 1586. Ternate, the chief of the Moluccas, is nothing more than a volcanic cone, occasionally emitting flames from its summit; and on its sides are large pits of melting sulphur. The isles of France and Bourbon are entirely of volcanic origin; and the crater of the latter, while in a state of eruption, was visited by M. Bory de St. Vincent, who describes, with great interest, the phenomena observed on that occasion.

Rivers.—From the mountains of Asia numerous rivers descend, which serve greatly to refresh the surrounding country. The river Lena rises east of Siberia, near the lake Baikel, and flowing first north-east, then north, enters the Frozen Ocean, opposite the Borkhaya isles, after a course of 1900 miles. The river Enisei, rising in the Altaïan mountains, flows into the same sea after a course of at least 1400 miles. The Oby, perhaps the widest river in the Russian empire, rises about 51° north latitude, and 87° east longitude from the Altúrnor of the Kalmaks, and Ozero Teletzkoï of the Russians; and after a course of not less than 2000 miles, falls into the Obskaya Juba, or sea of Oby, within the arctic circle. The

river Irtish takes its rise in 46° north latitude, and 92° east longitude, in the northern barrier of the central plateau; and after rolling its rapid stream as far as the 62d degree of latitude, and gathering numerous tributary waters in its course, falls into the river Obe, north of Samarou. The Amour, or Saghalià, which rises in the Kalcas country, is formed by the junction of the two rivers, Kherton and Argun; and after traversing Chinese Tartary, and receiving several large rivers in its course, disembogues itself in the sea of Okhotsk, near the northern extremity of the channel of Tartary, completing a course of 1800 miles. The rivers of China chiefly rise in the eastern declivity of the Table Land. The Mékàng, or Kambója, and the Irawadi, or Ava River, after descending from the plateau into the lower country by long and winding courses, flows in a direct line to the Indian Ocean. The three most celebrated rivers that spring from this region are the Indus, Ganges, and Burrampooter. The Ganges river is held sacred by the inhabitants, and is the only one of the three of whose source we have any satisfactory information; although Moorcroft tells us he found that of the Indus in 31° 3′ north latitude, and 80° 35′ east longitude. The two others rise in Thibet; the Burrampooter waters the eastern parts of Bengal; and the course of the Indus, to the south, has been known ever since the time of Alexander. The Oxus and the Jaxartes are two large streams, well known to the ancients, which rise from the western declivity of the central range; the former emanating from the glaciers of Pushti-khur, is supposed anciently to have taken a north-westerly course; at present it proceeds almost due north, and falls into the lake Aral. The latter rises in the Belúrdágh or Icy mountains, west of Afgháunistàun, and enters the eastern side of the same lake. The Tigris and Euphrates flow to the south, and the Araxes to the east, watering a considerable extent of country. The Jordan and Orontes fertilize and beautify the vales of Syria and Palestine. Anatolia, though it has neither broad nor rapid rivers, is refreshed by the division of innumerable smaller streams, which throw an enchanting appearance over the surface of the landscape. The Halys, or Kizil Irmà, arising from mount Taurus, after a course of 350 miles, falls into the Black Sea. But the Howang-hò, or Yellow River, which waters the northern provinces of China, is perhaps the deepest and most rapid river of Asia. This river rises on the eastern declivity of the plateau, and rolls its vast stream with unabated rapidity, to nearly 2000 miles. The Yang-tse-kiang, or son of the sea, is another noble stream of China.

Climate.—The climate of Asia is exceedingly various, owing to the different degrees of elevation. In the south-east the heat is excessive, and in the northern parts the cold is almost insupportable. In Anatolia the central parts are colder than the provinces of France, although the latter are ten degrees farther north. The cause of this is explained by Mr. Brown, who calculates that the city of Erz-rùm is 7000 feet above the level of the sea. This extraordinary altitude of level, together with the great body of snow on the neighbouring mountains, accounts for the extremes of cold in Persia and Tartary; Arabia is considerably tempered, though within the tropics. China being mountainous has an agreeable climate; while in India and the Burman empire, are sensibly experienced the full effects of a torrid zone.

Vegetables.—The stupendous mountains, immense plains, immeasurable forests, noble rivers, and wide spreading marshes of this quarter of the earth, together with the variety of the soils, and an extreme difference of climate, from the intense cold of Siberia, where mercury freezes, to the almost insupportable heat of the sandy deserts: from the eternal frost that reigns around the pole, to the sterility of the arid waste, including diversified intermediate regions, always adorned with the blossoms of spring, enriched with the fullness of summer, or laden with the productions of autumn, produce an unparalleled variety of vegetation, from the almost imperceptible moss that creeps along the Arctic shores to the hundred-stemmed banian that spreads its beautiful luxuriance beneath a tropical clime. Some parts of Asia are very sterile, and the inhabitants look for support to the surrounding sea, in which fishes and mollusca abound. Vegetable productions however, generally speaking, are numerous, and differ according to the climate under equal circumstances of soil and irrigation. The central and western parts produce all sorts of grain which are common in Europe, and culinary vegetables in the highest perfection. The tropical and southern regions afford gums, spices, medicinal roots, and extracts unknown in colder climates. Several genera of plants are peculiar to New Holland and the adjacent islands. The tea-tree is found chiefly in the central regions; and the bread fruit and bamboo, which are natives of Asia, are useful in every part of domestic economy.

Minerals.—This division of the globe contains the precious metals in great abundance: gold is washed down the rivers of Asia Minor. Arabia still supplies it in its utmost purity; and in Assam, Celebes, and Borneo, the gold is said to be native. Mount Sipylus has been celebrated for the production of silver, and the mines of Tokat supply both silver and copper. Great quantities of tin are found in the island of Banca; lead and iron in various parts of the continent; precious stones are found in great variety throughout the whole of Asia; fine diamonds in Golconda; rubies in Ceylon, topazes in Siberia; and the most beautiful pearls in the straits of Manaar and the Bahrein islands; the corundeum and other valuable stones are peculiar to these countries. Singular remains of antiquity are also dug out of the earth; huge tusks of a species of animal now unknown, and even the entire animal itself, is found in the islands of the Frozen Ocean.

Animals.—Asia contains a great variety of land and marine animals, from the minute insect that flutters in the solar beam, to the stupendous elephant, the ferocious tiger and the majestic lion. The most valuable are indigenous to this quarter of the globe. The horse is found on the northern confines of Persia in his native state,

but exhibits none of the symmetry, powers, or proportions, to which he arrives through a course of domestic training. The camel is found here in his most perfect growth, and performs journeys which to the horse would be fatal. The elephant is trained to all sorts of service. The sea-otter, so valuable for his fur, and the whale are common, and supply a considerable source of wealth to the inhabitants.

'The population of Asia,' it has been observed, 'by no means equals those expectations which its history would naturally inspire,' owing to the ravages of war, and the influence of despotic governments, which always impose an effectual check upon the increase of population. Nevertheless, where the governments are mild and beneficial, as in British India, the reverse is the fact. China in particular, owing to a long freedom from foreign and domestic war, is said to exhibit the amazing population of five hundred millions; and even this, according to some geographers, is below the real amount.

Asia, however, being the scene of human origination, is still peopled by numerous indigenous tribes, and presents an ample field for the study of man, in all the stages of his progress from barbarism to civilisation. The variety observed in the appearance of the natives is probably the effect of difference of climate, aliment, and religion. The Samoied tribes, New Hollanders, and inhabitants of Andaman, are of diminutive size. The people of Jesso and the Kurile islands, have uncommonly large beards, and an unnatural profusion of hair all over their bodies. The Tartars and Chinese are known by the peculiar figure of their faces; the latter particularly by their oblique contracted eyes. There is, however, reason to believe they were anciently derived from one common origin, and bore a great resemblance to each other.

History.—Noah is said to have settled in Asia, immediately after the deluge, near the borders of the Euphrates, and to have peopled the whole continent. The posterity of Shem occupying the central regions; Japhet the northern; and Ham the southern. Javan and his descendants, Ashkenaz, Dodanim, Tarshish, Elisha, Togermah, and Riphath, are supposed to have been the ancient inhabitants of Asia Minor. The Canaanites and Amalekites were the people of Syria and Arabia Petræa. Modern writers have referred the present natives of Asia to those different stocks the Hebrews, Indians, and Tartars, the propriety of which will appear from their make, features, and languages. There are, however, some large tribes, as the Malays and aboriginal negroes, which cannot be referred to either of these classes, as also the mountaineers of Caucasus, and the inhabitants of northern Siberia. Mr. Pinkerton observes, that the population of Asia is allowed by all authors to be wholly primitive and original; with the exception of the Tshuktshis, whom the Russian historians suppose to have passed from the opposite coast of America, the colonies that have migrated from Russia to the northern parts as far as the sea of Kamtschatka, the well-known European settlements, and a few others. Asia certainly presents an amazing original population. We add the following table of the nations and languages in Asia, as calculated to give the reader a tolerably accurate idea of this interesting subject of enquiry.

Table of the Nations and Languages in Asia.

1. Assyrians.—Assyrians, Arabians, Egyptians.—Chaldee, Hebrew, &c.

2. Scythians.—Persians, Scythians intra et extra Imaum, &c. Armenians.—(The Parsi and Zend are cognate with the Gothic, Greek, Latin, according to Sir William Jones. Indian Dissert. vol. i. p. 206. The Pehlavi is Assyrian or Chaldaic. Id. 187, 188. 206.)

3. Sarmats.—Medes and Parthians.—Georgians and Circassians.

4. Seres and Indi.—Hindoos, northern et southern, &c.

5. Sinæ.—Chinese and Japanese.—These have a Tartaric form and face; they are probably highly-civilised Tartars, Mongoles, or Mandshurs.

Barbaric Nations from north to south, and according to the degrees of barbarism.

6. Samoyedes, Ostiaks, Yurals, &c.

7. Yakutes.—Yukagirs. (Expelled Tartars, according to Tooke and Lesseps.)

8. Koriaks.—Tshuktshis. (From the opposite coast of America. Tooke's Russia. The Yukagirs are a tribe of the Yakutes, around Yakutsk, and both are expelled Tartars. Tooke's View, ii. 80. Lesseps, ii. 312.)

9. Kamtskatdales.—Kurillans.—(These resemble the Japanese.)

10. Mandshures or Tunguses.—Lamutes.—(Ruling people in China.)

11. Mongoles.—Talmuks.—Soongares, Tungutes, Buræts, &c.

12. Tartars or Huns.—Turks, Khasares, Uzes, and Siberians.—Nogays, Bashkirs, Kirghisikaizaki or Kirghise Kaizaks, Teleutes.

After the destruction of Attila's swarms, and the effects of unfortunate inroads, the Huns became subject to the Mongoles, who under Zingis, or Chingis khan, Timur, &c. consituted the supreme nation in Asia.

The great share of population which Europe has received from Asia will appear from the following brief statement.

Primitive Inhabitants.

1. Celts.—Irish, Welsh, Armorican.—Erse, Manks, Cornish.

2. Fins (chief god Yummala).—Finlanders, Esthonians, Laplanders, Hungarians, Permians or Biarmians, Livonians, Votiaks and Cheremisses, Vogules and Ostiaks.

Colonies from Asia.

3. Scythians or Goths (Odin).—Icelanders, Norwegians, Swedes, Danes, Germans, English.—Swiss, Frisic, Flemish, Dutch.

4. Sarmats or Slavons (Perune).—Poles, Russians, Kaizaks.—Heruli, Vendi, Lettes.

The inhabitants of France, Italy, and Spain, are also of Asiatic origin; and speak corrupted Roman, which, like the Greek, is a polished dialect of the Gothic, according to Sir William Jones, and other able antiquaries. The Heruli

Vendes, and Lettes, used mixed and imperfect dialects of the Sclavonic.

Besides these numerous original nations, the Malays and Asiatic islanders constitute another large and distinct class of mankind, with a peculiar speech, in the south of the extensive continent of Asia.

Governments.—The people of Asia in their civil state consist of families occupying the same territory, but acknowledging no chief or governor; of independent tribes associated under one common potentate as the Arabs and Tartars, and therefore called equestrian nations; or of kingdoms ranged under established monarchies, of which the chief are Independent Tartary, China, Thibet, with its subsidiary provinces, the Japanese empire, &c. The Asiatic governments are mostly despotic, and those established by Europeans are nearly of the same description. In some of the political institutions of Asia there is, however, the rude image of a popular administration; in others the influence of women is admitted; whilst in some few the prince is guided in all public measures by the advice of his nobles. Were the principal governments in Asia to be arranged according to their natural and political importance, they would probably succeed each other in the following order: China in the first place, and after this successively Persia, Turkey, and Russia; the precedency of the numerous other states can hardly be ascertained.

Religion.—The most common religion of Asia is idolatry. The doctrines of Mahomet prevail to a great extent; but their influence is upon the decline, owing in a great measure to the popularity of the Wahabees. Christianity is now generally rejected in Asia, and in many countries even where it was formerly tolerated, as in China and Japan. The sacrifice of animals, and even of human victims, is very frequent; and a spirit of the most degrading superstition seems to reign throughout the vast regions of this division of the globe. Penance is carried beyond even the bounds of probability. Imposing upon himself perpetual silence, gazing on the sun till his eyes become fixed in their sockets, lacerating his body with sharp weapons, and other practices still more shocking to humanity are, through vast regions, considered among the most acceptable services which a man can offer to the deity. Polygamy is generally practised, and sometimes even a plurality of husbands are allowed to a single woman: females of rank also, betrothed at an early age, cohabit not with their husbands but with other men without reproach. Infanticide is common; and burning the living wife with the body of her dead husband, though now rendered a voluntary act on the part of the woman, has by no means subsided. Many of the tribes are complete cannibals, and others are little better.

Character of Inhabitants.—The inhabitants of Asia, violent in their dispositions, are generally ferocious, vindictive, and cruel. The tender ties of nature are little felt. Children are openly sold by their parents without even the apology of necessity. Wives are sacrificed by their husbands even on the bare suspicion of infidelity; and in the most civilised state after an unfortunate contest for the crown, the unsuccessful prince, if not executed, invariably has his eyes put out, though the rival should be his own brother.

The ancient geography of Asia cannot be contemplated without feelings of excitement, which the deep gloom of her present degraded and idolatrous condition are unable to suppress; feelings unknown in the contemplation of any other portion of the globe. Asia was the parent of nations, the cradle of civilisation and science—here occurred most of those remarkable transactions recorded in the scripture history—here arose successively the Babylonian, Assyrian, and Persian empires—and here the Christian religion was first planted for the salvation of man. Much of the celebrity of this quarter of the globe is undoubtedly owing to its climate, and the numerous gulfs, bays, and navigable rivers with which it abounds opening early facilities for commerce, &c.; but still more perhaps is to be attributed to the native genius and sanguine temperament of its inhabitants.

The origin of the name of Asia has given rise to some curious speculations and disquisitions. The Greeks deduced it from Asia, the fabulous daughter of Oceanus and Thetis. Others have derived it from Asius, king of Lydia. Bochart traces it to the Hebrew or Phœnician word Asi, signifying middle, which is, however, unsupported by historical evidence. According to Homer, Herodotus and Euripides, it early designated a country of Lydia, where ancient geography mentions a tribe of Asiones and a city of Asia. The name, however, was gradually extended by the Greeks from a single province to the whole of Asia Minor, and afterwards to other regions as they were discovered successively; in the same manner as Allemagne is applied by the French to the whole of Germany; and as Italia, an ancient canton in Calabria, is now denominated the peninsula of Italy. Since, however, much perplexity has arisen among authors by the diverse acceptations of the term Asia, so as to render it extremely difficult for their readers to know what region was distinctly understood by that appellation; and since it is not easy to reconcile the apparent inconsistency between sacred and profane history, as to the provinces which it comprised, we present the following observations for the satisfaction of the reader:—The ancient geographers divided the vast continent that was known to the Greeks and Romans under the word Asia, first into Greater and Lesser Asia. The latter, also called Asia Minor, was thought to be a peninsula terminated by a line drawn from Sinope to the line of separation between highland and lowland Cilicia (Aspera and Campestris). It comprehended a great number of provinces; but that which included Phrygia, Mysia, Caria, and Lydia, was denominated Asia Proper, or Asia properly so called. Cicero enumerating the regions contained in Asia Proper, makes no mention of Æolis or Iolia, though undoubtedly a district of it, as being comprehended partly in Lydia and partly in Mysia. Lydia, beside the inland country commonly known by that name, contained also Ionia, lying on the sea-side, between the rivers Hermus and

Mæander; and Æolis, extending from Hermus to the river Caicus, or to the promontory Lectum, the ancient boundary between Troas and the sea-coast of the Greater Mysia. Accordingly, Asia Proper comprehended Phrygia, Mysia, Lydia, Caria, Æolia, and Ionia. This tract was bounded, according to Ptolemy, on the north by Bithynia and Pontus, extending from Galatia to Propontis; on the east by Galatia, Pamphylia, and Lycia; on the south by part of Lycia and the Rhodian sea; on the west by the Hellespont, by the Ægean, Scarian, and Myrtoan seas, occupying the space between the thirty-fifth and forty-first degree of north latitude, and extending from 55° to 62° of longitude.

As Asia Proper is but a part of Asia Minor, so the Lydian Asia is only a part of Asia Proper. Asia, in this acceptation, comprehends Lydia, Æolia, and Ionia; and is that Asia whereof mention is made in the Acts and the Apocalypse. Aristotle tells us that Smyrna was at first possessed by the Lydians; and Scylax Coryandensis reckons it among the cities of Lydia, as also Ephesus, Sardis, Philadelphia, and Thyatira, are reckoned by Ptolemy among the cities of Lydia, as is Laodicea by Stephanus. Steph. de Urbid. That in ancient times Lydia was called Mæonia, and the Lydians, Mæonians, is manifest from Herodotus, Diodorus Siculus, Dionysius Afer, Strabo, Pliny, Stephanus, and others; and that Mæonia was called Asia is no less plain from Callinicus, who flourished before Archilochus, from Demetrius Scepsius, contemporary with Crates, and Aristarchus the grammarian, from Euripides, Suidas the great etymologist, &c.; besides which it is expressly affirmed by the ancient scholiast of Apollonius Rhodius, that Lydia was formerly called Asia, and hence Lydia has been said to have a better claim to the name of Asia than any other part of that continent. Ulterior (or Greater) Asia comprehended the remaining part of that continent. Its great divisions were Iberia, Colchis, and Albania, between the Euxine and Caspian seas; Mingrelia, Georgia, and Dághistàn Armenia, which retains its ancient name. Media and Persia included in modern Persia. Bactriana and Margiana; the Merri, Balkh, and Bokhàra of the Turks and Tartars; Syria, Mesopotamia and Assyria, the Biládu'sh ishám, Dìyar bekr, and Abjonirah of the moderns. Hyrcania, Persia, and Susiana, the Irák and Fárs of the present day. Judea, Babylonia, and Chaldea; the southern part of Syria and Pachalic of Bagdàd. India the country between the Indus and Ganges, and Syria the remoter regions to the north-east.

Ancient Geography.—The earliest accounts of this vast portion of the globe are those contained in the Scripture, which are, however, extremely imperfect. Moses has enumerated the different parts of the earth with which the Hebrews were familiar; but, in consequence of the names by which he designates the places differing from other authors, great obscurity hangs over the whole of his geography, except that which relates to the land of Canaan itself, and the states immediately contiguous. He appears to have been well acquainted with Asia Minor, Armenia, Media, Persia, and Arabia. The Gog and Magog of Scripture seem to have been the inhabitants of Caucasus. Riphath seems to refer to the Riphæan mountains; and Rosh refers to the ancient Rossi, from whom were descended the Russians of the present day. The more northerly parts of Asia were evidently unknown to the Greeks. Herodotus considered the Phasis in Colchis as the line of separation between Europe and Asia, whilst others believed the Don, or Tanais, as the proper limit. The mountains north of India were the utmost boundary of their knowledge with respect to that part of Asia. The Ganges and the Indian Ocean they considered the eastern and southern limits; and the Red Sea, with the isthmus between it and the Mediterranean, brought them back to the western or nearest side. Many geographers included Egypt in Asia, making the Catabathnus, or western side of the valley of the Nile, the separation between Asia and Africa; whilst others considered the Nile itself as the line of separation. Strabo and Pliny supposed the northern end of the Caspian sea communicated with the ocean.

Progressive Geography.—At the time when Asia was first mentioned in history it probably contained more powerful empires than it does at present, the Chinese excepted. Alexander the Great carried his arms beyond the Indus. The Sinæ, or eastern Indians, were known to Ptolemy in the second century, and also Taprobane or Ceylon, with Jabadia, the Javia dwipa of the Indians, and the Java of our maps. Alfred, king of England, deputed a mission to the shrine of St. Thomas on the coast of Babelmandel; and the crusades of Syria and Palestine, in the eleventh and twelfth centuries, led to an intimate acquaintance with that part of Asia. Shortly after the passion for crusades had subsided, a spirit of commercial enterprise was excited, and merchants, from several parts of Europe, penetrated into the interior. The monks, animated with a desire to convert the heretics, departed in great numbers for Asia; a mission deputed from the pope to the court of the Moguls, and another from Louis of France to the same princes contributed on their return, by the publication of their travels, to enlarge the ideas of Europeans with respect to that part of the world. Marco Polo, a Venetian merchant, with his companions, spent twenty-six years in travelling either as merchants, or as agents of the Great Khan of the Tartars, during which period they for the first time disclosed the great desert of Cobi, and made great additions to our knowledge of oriental geography, particularly in the north of Asia. Such indeed was the ignorance of the age in which he lived, that his descriptions of the magnificence and wealth of the Asiatics were regarded by his contemporaries as the effusions of romance. Subsequent information has nevertheless raised him to distinguished credit, and his work is now considered one of the most curious monuments we possess of the state of Europe and Asia in the middle ages. In the fifteenth century improvements in navigation, and the spirit of commercial enterprise, facilitated the progress of discovery. A passage was discovered to India round the Cape of Good Hope, and the

English, Dutch, Spanish, and Portuguese settled several establishments on the Asiatic coast, from which they undertook still more distant expeditions into the interior, and opened an intercourse with China, Japan, and Hindostan. The British government sent out repeated expeditions under the conduct of Cook, Byron, and others, to make discoveries in the Southern Ocean; and the empress Catharine about the same time directed scientific travellers to explore some of the central parts of her Asiatic dominions. Geography by these means received many splendid additions, and our knowledge of different and distant parts of the globe illustrated many important and interesting points in the physical and natural history of southern Asia. Van Diemen's Land and New Holland were explored by captain Flinders. The same voyager also observed that there is no river deeply penetrating into the latter island; and that the gulf of Carpentaria is a basin of vast extent studded with islands. The expulsion of the Dutch from their insular settlements has also led to an intimate acquaintance with those territories, all knowledge of which they endeavoured to conceal. Travellers from British India have greatly increased our information with respect to the neighbouring regions. A mission to the court of Persia has thrown a light on the geography and policy of that distinguished empire, and shown how defective our information was with regard to Oriental nations. A field of discovery, however, yet remains to complete the geography of this part of the world. The origin, course, and progressive increase of some of its greatest rivers are unknown; scarce any of its internal seas, except the Caspian, have been the subjects of actual survey; and its mountains, perhaps the most stupendous masses on the globe, present a wholly unexplored field of enquiry. Siberia is but little known; and even of the coasts no perfect survey has ever been taken. The whole extent of country from the Caspian to the sea of Okhosts, including a superficial area of many thousands of miles, is occupied by nations and people whose names are scarcely known. Little more than the borders of Arabia is known to Europeans. The interior regions of Tartary and the northern part of China require much illustration. The same remark may be applied to India and the interior of Asia generally. With regard to the probable population of this continent so defective is our knowledge that differences of between one and two hundred millions exist in regard to that of China alone. Our knowledge of the islands is almost equally imperfect. Not a tenth part of New Holland has been attempted, and that only in a single line, although every journey unfolds novelties and wonders in nature which seem to distinguish this extensive island from every other region in the world. Borneo, Sumatra, Celebes, and Papua greatly demand the attention of travellers. The north-eastern angle of territorial Asia has been repeatedly visited by navigators and travellers since the civilization of Russia by the genius of Peter the Great; but the geography and natural history of that region have been hitherto described in a manner which is exceedingly imperfect. On the whole we are looking for superior lights. The morning which dawned so many centuries ago has hitherto advanced but slowly; and we hail the approach of a brighter period, which is not very remote, when the sun of discovery shall burst the clouds in which he has been enveloped, and irradiate the geography of this interesting section of the globe.

The propagation of Mahommedanism, and the exterminating wars by which it was attended, effected a complete revolution by the states of this continent. The Greek empire sunk in the arms of the victorious Moslems. The caliphs for a time prevailed to a considerable degree over their Constantinopolitan predecessors, and were in their turn humbled by the Tatarian Jengerè and Témùr. The latter were finally absorbed in the overwhelming power of the Turks who now, having no formidable enemy to oppose, overran the west of Asia, and in the middle of the fifteenth century extinguished the Eastern Empire, and laid the foundations of those great divisions of this continent which subsist at the present day.

With respect to the modern divisions of Asia, we observe that the Russian empire extends from the Uralian mountains to the sea of Kamschatka, and from the Arctic Ocean to the parallel of fifty degrees north latitude. It is inhabited by Tartars, Mongols, Mantchirs, &c., under the general name of Siberia. The Asiatic part of the Ottoman Empire, consisting of Anatolia, Syria, and Diyar-Bekr, the ancient Mesopotamia, lies between the Black Sea and the Mediterranean; the canal of Constantinople and the Tigris; Arabia lies to the south of the latter country; and Persia lies east of the Tigris, as far as the Indus, between the Caspian Sea and the Persian Gulf. East of the Caspian, as far as east longitude 100 degrees, between Russia and Persia, are the independent Tartars. From the above meridian, to the Sea of Japan, lies eastern or Chinese Tartary, inhabited by the Mantchirs who subdued China in the middle of the seventeenth century, and whose original country forms at present the northern part of that empire. Thibet is on the north side of the Himàlaya mountains, the Alps of Hindostan. South and east of China lies the peninsula of India, beyond the Ganges. West of the Burman empire is India on this side the Ganges, comprehending Kashmir, Hindostan, and the Deccan. The islands are under various governments, and have been made the seat of various commercial establishments by the different powers of Europe, of which an account will be given under their names separately.

Asia Minor is the western portion of Asia, having the Black Sea on the north, the Euphrates on the east, and the seas Mediterranean and Marmora, with the Hellespont and Bosphorus, on the west. It is of an irregularly oblong figure, 1000 miles from east to west, and 400 or 500 from north to south, variously indented by bays and inlets, and having a few peninsulas and promontories. Its streams and rivers are numerous but not large; the interior abounding with saline lakes, crystal fountains, and hot-springs, whose waters have been cele-

brated for their medicinal qualities. The climate is fine, and its valleys warm, washed in some places by mountain torrents, shaded by the mountains, and tempered by cool and refreshing breezes from the sea. Long ranges of hills, from which branches diverge in all directions, isolated rocks and mountains crowned with trees and verdure, delightfully change the prospect; while the luxuriance of the soil and abundance of grain, fruits, and every species of vegetation, render subsistence comfortable and happy. Earthquakes are, however, frequent, overwhelming entire cities and their inhabitants; and the plague sweeps away its thousands. The whole country is subject to the Turkish government, and inhabited chiefly by Mahommedans and Christians. It is divided into several large provinces, of which Natolia and Caramania are the most important. It contains the cities of Angora, Bursa, Smyrna, and Tocat, besides the ruins of many others which have been highly celebrated in history. The southern shore of Caramania is overspread with remains of Grecian antiquities; and Natolia abounds with ancient curiosities and columns, having been the theatre of important events from the earliest history. The several islands in the Archipelago, belonging to this country, are also highly classical and important.

This part of Asia is the most interesting region of the earth, the parent of education, arts, and arms—the cradle of mythology, poetry, and eloquence—the favorite abode of the muses—the soil in which lay the ancient roots of genius, which have since struck round the world, beautified the moral wastes, and still luxuriantly expand their blossoms in almost every clime of the civilised globe.

ASIAGO, one of the seven Venetian communes in Upper Italy, in the midst of mountains, in the north of the circle of Vicenza, and now belonging to Austria. The inhabitants are descendants of the ancient Germans, and lead a purely pastoral life. They enjoyed great privileges under the Venetian government, and have more than once defended the passes of their country against the inroads of a foreign foe. The large town of Asiago is the seat of the court of justice for all the communes; has a castle, and 11,000 inhabitants. It is twenty miles north of Vicenza.

ASI'DE. On side. See SIDE.

And he took him *asidis* frō the people and puttede hise fingris into hise eeris and he spette and touchide his tonge. *Wyclif. Mark* ch. vii.

FRAN. Sir, he may live.
I saw him beat the surges under him,
And ride upon their backs; he trod the water,
Whose enmity he flung *aside*, and breasted
The surge most swoln that met him; his bold head
'Bove the contentious waves he kept, and oar'd
Himself with his good arms in lusty strokes
To the shore; that o'er his wave-worn basis bowed.
Shakspeare's Tempest.

Thus (she pursu'd) I discipline a son,
Whose uncheck'd fury to revenge would run;
He champs the bit, impatient of his loss,
And starts *aside*, and flounders at the cross.
Dryden's Hind and Panther.

It is the custom of the Mahometans, if they see any printed or written paper upon the ground, to take it up and lay it *aside* carefully, as not knowing but it may contain some piece of the Alcoran. *Addison.*

ASILUS, in entomology, the hornet-fly, a genus of insects belonging to the order of insecta diptera. It has two wings; and a horny, strait, two-valved, beak. There are seventeen species of this insect. Many of them wound in a very painful manner, and are particularly troublesome to cattle in low meadows; others of them are quite harmless.

ASILUS, in ornithology, the name used by many for the luteola, or regulus non cristatus, an extremely small bird, common among willows.

ASINARII, an appellation given, by way of reproach, to the ancient Christians, as well as Jews, from a mistaken opinion, among heathens, that they worshipped an ass.

ASINESIA, in medicine, an immovableness of the body, or in any part of it, as in apoplexy, palsy, &c.

ASINIUS LAPIS, a name given by some writers of the middle ages, to a stone, said to be found in those places frequented by the wild ass. See BEZOAR.

ASINUS PISCIS, in ichthyology, a name given by some to the eglefinus, or common haddock, called also onos.

ASIO, in ornithology, a name given by Aldrovandus and others, to the otus, or lesser horn owl.

ASISIA, or ASSISIA, a town of Liburnia, now in ruins, but exhibiting many monuments of antiquity. It is the Asseria or Assesia of Pliny, and is now called Podgraje. See ASSERIA.

ASISIO, or ASITIO, a city of the Pope's territories in Italy, situated about sixteen miles east of Perugia, and eighty north of Rome. It is seated on a mountain, and is said to have been the birth-place of St. Francis.

ASK, } Ang.-Sax. secan, ascecan, to seek,
ASK'ER. } to ask; ascean, to seek, to ask. To seek, enquire, demand, require, petition, beg.

As it is a great point of art, when our matter requires it, to enlarge and veer out all sail; so to take it in and contract it, is no less praise, when the argument doth *ask* it. *Ben Jonson.*

A lump of ore, in the bottom of a mine, will be stirred by two men's strength; which, if you bring it to the top of the earth, will *ask* six men to stir it. *Bacon.*

When thou dost *ask* me blessing, I'll kneel down,
And *ask* of thee forgiveness. *Shakspeare.*

We have nothing else to *ask*; but that,
Which you deny already: yet will *ask*;
That, if we fail in our request, the blame
May hang upon your hardness. *Id.*

In long journeys, *ask* your master leave to give ale to the horses *Swift.*

Let him pursue the promis'd Latian shore,
A short delay is all I *ask* him now;
A pause of grief, an interval of woe. *Dryden.*

Ask of the learn'd the way; the learn'd are blind;
This bids to serve, and that to shun mankind;
Some place the bliss in action, some in ease,
Those call it pleasure, and contentment these.
Pope. Essay on Man.

Upon my *asking* her who it was, she told me it was a very grave elderly gentleman, but that she did not know his name. *Addison.*

ASKAH, a town of Hindostan, in the northern circar, Cicacole, thirty-six miles north by west of Ganjam. It stands in N. lat. 19° 44′, E. long. 84° 55′.

ASKANCE′, ASKAUNCE′, ASKAUNT′, ASQUINT′. Supposed to be from *aschined*, participle of the Dutch verb *schuinen*, to cut awry. From whence probably are squint and asquint; sideways, oblique.

And wrote alway the names, as he stood,
Of alle folk that gave hem any good,
Askaunce that he wolde for hem preye.
Chaucer. The Sempnour's Tale.

Some say, he bid his angels turn *askance*
The poles of earth, twice ten degrees and more,
From the sun's axle: they with labour push'd
Oblique the centric globe. *Milton.*

Zelmane, keeping a countenance *askance*, as she understood him not, told him, it became her evil.
Sidney.

His wannish eyes upon them bent *askance*;
And when he saw their labours well succeed,
He wept for rage, and threaten'd dire mischance.
Fairfax.

While thus their worke went on with lucky speed,
And reared rammes their horned fronts aduance,
The ancient foe to man, and mortall seed,
His wannish eyes vpon them bent *askance*.
Fairfax's Tasso, book iv.

At this Achilles roll'd his furious eyes,
Fix'd on the king *askaunt*; and thus replies,
O, impudent—— *Dryden.*

Since the space, that lies on either side
The solar orb, is without limits wide;
Grant, that the sun had happened to prefer
A seat *askaunt*, but one diameter:
Lost to the light by that unhappy place,
This globe had lain a frozen loansome mass.
Blackmore.

Through his bright disk the stormy weapon flew,
Transpierc'd his twisted mail, and from his side
Drove all the skin, but to his nobler parts
Found entrance none by Pallas turn'd *askance*.
Cowper's Iliad, book xi. p. 195.

——Panic-fixed he stood,
His seven-fold shield behind his shoulder cast,
And hemm'd by numbers with his eyes *askant*,
Watchful retreated. *Id.* book xi.

ASKERON, a place five miles from Doncaster, noted for a medicinal spring. It is a strong sulphureous water, slightly impregnated with a purging salt. It is recommended internally and externally in strumous and other ulcers, scabs, leprosy, and similar complaints. It is good in chronic obstructions, in cases of worms, &c.

ASKEW′. Dan. *skiævt*, crooked; from *skiæver*, to twist.

For, when ye mildly look with lovely hue,
Then is my soul with life and love inspir'd:
But, when ye lowre, or look on me *askew*,
Then do I die. *Spenser.*

Then take it, Sir, as it was writ;
Nor look *askew*, at what it saith:
There's no petition in it. *Prior.*

This said, her spear she push'd against the ground,
And, mounting from it with an active bound,
Flew off to heaven: the hag with eyes *askew*
Look'd up, and mutter'd curses as she flew.
Addison. Ovid's Met. book ii.

ASKEW (Anne), an English lady, the daughter of Sir William Askew, of Kelsay, in Lincolnshire. She was born at her father's seat about 1520; and received a liberal education. Early in life she was married to a Mr. Kyme, contrary to her own inclination; and, being harshly treated by her husband, she went to the court of Henry VIII. to sue for a separation. Here she attracted the particular notice of such ladies as were attached to the reformation: on this account she was arrested; and, acknowledging her religious principles, was sent prisoner to Newgate. After having been put to the rack with savage cruelty in the Tower, she was burnt in Smithfield, along with her tutor, and two other persons of the same faith, in 1546. Her letters in Fox and Strype show her to have been an accomplished and pious woman.

ASKEYTON, a market town of Limerick, seated on the river Deel, 110 miles from Dublin; noted for its castle, built by the earl of Desmond, and for its beautiful abbey.

ASLA′KE. Ang.-Sax. aslæcian, to abate; to resolve, to unbend, to reduce to its component parts, to slake, or slacken.

But this continual, cruel, civil war
No skill can stint, nor reason can *aslake*.
Spenser.

Whilst, seeking to *aslake* thy raging fire,
Thou in me kindlest much more great desire. *Id.*

But suche as of ther golde ther only idoll make,
Noe treasure may the rauyn of their hungry hands *aslake*. *Surrey.*

ASLAN, or ASLANI, in commerce, a name given to the Dutch dollar in most parts of the Levant. The word is also written corruptly, asselani. It is originally Turkish, and signifies a lion, which is the figure stamped on it. The Arabs, taking the figure of a lion for a dog, called it abusketh. It is silver, but much alloyed, and is current for 115 or 120 aspers. See ASPER.

ASLAN′T. On slant. See SLANT.

There is a willow grows *aslant* a brook,
That shews his hoar leaves in the glassy stream.
Shakspeare. Hamlet.

He fell; the shaft
Drove thro' his neck, *aslant*: he spurns the ground;
And the soul issues through the weapon's wound.
Dryden.

Lo! now apparent all
Aslant the dew-bright earth and coloured air,
He looks in boundless majesty abroad,
And sheds the shining day that burnished plays
On rocks, and hills, and towers, and wandering streams,
High gleaming from afar. *Thomson.*

ASLEE′P. On sleep. See SLEEP.

This false knight vpon delaie
Hath taried till thei were *asleepe*,
As he that woll time kepe
His deadly workes to fulfille.
Gower. Con. Am, book ii.

How many thousand of my poorest subjects
Are at this hour *asleep*! O gentle sleep,
Nature's soft nurse, how have I frighted thee!
Shakspeare

The diligence of trade, and noiseful gain,
And luxury, more late *asleep* were laid:
All was the night's; and, in her silent reign,
No sound the rest of nature did invade. *Dryden.*

For gorg'd with flesh, and drunk with human wine,
While fast *asleep* the giant lay supine
Snoring aloud, and belching from his maw
His indigested foam and morsels raw:
We pray, we cast the lots, and then surround
The monstrous body, stretch'd along the ground.
Id. Virgil, Æneid iii.

There is no difference, between a person *asleep*, and in an apoplexy; but that the one can be awaked, and the other cannot. *Arbuthnot on Diet.*

ASLOPE'. On slope, or slip. See SLOPE.

For many times I have it seen,
That many have begyled been,
For trust that they have set in hope,
Which fell hem afterward *aslope*.
Chaucer. Romaunt of the Rose, fol. 137. c. 1.

Set them not upright, but *aslope*, a reasonable depth under the ground. *Bacon.*

The curse *aslope*
Glanc'd on the ground; with labour I must earn
My bread! what harm? Idleness had been worse;
My labour will sustain me. *Milton.*

The knight did stoop,
And sate on further side *aslope*. *Hudibras.*

Where porters' hogsheads roll from carts *aslope*,
Or brewers down steep cellars stretch the rope;
Where counted billets are by carmen tost,
Stay thy rash step, and walk without the post.
Gay. Trivia, book ii.

ASMODAI, the name given by the Jews to the prince of dæmons; and according to R. Elias, the same with Sammael.

ASMONEUS, or ASSAMONEUS, the father of Simon, and chief of the Asmoneans, a family that reigned over the Jews 126 years.

ASNA, or ESNA, a town in Upper Egypt, seated upon the Nile, believed by some authors to be the ancient Syena, though others say the ruins of it are still to be seen near Assuan. It is so near the cataracts of the Nile, that they may be heard from thence, and it contains several monuments of antiquity; among the rest an ancient Egyptian temple, painted throughout. The columns are full of hieroglyphic figures. A little way from hence are the ruins of an ancient nunnery, said to be built by St. Helena, and surrounded with tombs. Asna is the principal town in these parts, and the inhabitants are rich in corn and cattle.

ASNAPPER, an Assyrian prince, mentioned in Ezra iv. 10, who settled the original Samaritans in the country of the ten tribes. It is uncertain, whether he was Salmaneser or Esarhaddon, or one of their generals.

ASOLA, a town of Upper Italy, in the territory of Brescia, on the Chiese, with a population of 4000. It is twenty miles S.S.E. of Brescia.

ASOLO, a Venetian prefecture, in the March of Treviso, Italy; belonging to Austria. It consists of the town of Asolo, and thirty-six villages, with 25,000 inhabitants. They cultivate grapes, corn, fruit, silk, oil, and garden vegetables, trade in cattle, and manufacture silk and woollen stuffs. The town of Asolo is seated on some agreeable rising grounds, skirted on the north and west by the Musone.

ASOPH, or AZOPH. See AZOPH.

ASOPUS, a town of Laconia, on the Sinus Laconius, with a port in a peninsula, between Boæ to the east, and the mouth of the Eurotas to the west. The citadel only remains standing.

ASOPUS, in ancient geography, the name of several rivers, viz. 1. In Bœotia, which, running from mount Cithæron, and watering the territory of Thebes, separates it from the territory of Platæa, and falls with an east course into the Euripus, at Tanagra. On this river, Adrastus, king of Sicyon, built a temple to Nemesis, and from it Thebes came to be surnamed Asopides. It is now called Asopo. 2. In Peloponnesus, which runs by Sicyon, and with a north-west course falls into the Sinus Corinthiacus, west of Corinth. 3. In Phrygia Major, which with the Lycus washes Laodicea. 4. On the borders of Thessaly, rising in Mount Œta, and falling into the Sinus Maliacus.

ASOR, or ASORUS, in ancient geography, 1. A town in the south-west of Judah, near Ascalon, called also Hazor, and Hasor-Hadata, translated by the seventy Ασωρη Ταινη. 2. A town of Galilee; called the capital of all the kingdoms north of Palestine. It was taken by Joshua; the inhabitants were put to the sword, and their houses burnt. It was afterwards rebuilt, but remained still in the hands of the Canaanites, though in the tribe of Naphthali. It lay north of the Lacus Samachonites, called in Scripture the waters of Merom.

ASOTUS, in ichthyology, a species of the silurus.

ASP, } Gr. ασπαιρω, to tremble, to quiver.
AS'PEN. } Shaking, trembling; because the leaves of the aspen tree tremble with each breath of air.

This Sompnour in his stirops high he stood
Upon this frere his herte was so wood
That like an *aspen* leef he quoke for ire.
Chaucer. The Sompnour's Prologue, vi. p. 292.

He to him raught a dagger sharp and keene,
And gave it him in hand: his hand did quake
And tremble like a leafe of *aspin* greene.
Spenser's Faerie Queene, book i. c. ix. s. 51.

The *aspen* or *asp* tree hath leaves much the same with the poplar, only much smaller, and not so white. *Mortimer.*

ASP, } Gr. ασπις, a serpent, said to be
ASP'ICK. } peculiar to Egypt and Lybia, whose bite is mortal and its effect immediate. Modern naturalists have not yet discovered this reptile.

High-minded Cleopatra, that with stroke
Of *asp's* sting herself did kill. *Faerie Queene.*

Scorpion, and *asp*, and amphisbæna dire,
And dipsas. *Milton.*

ASP, ASPICK, thus denominated from the Greek, ασπις, shield; on account of its lying convolved in a circle, in the centre of which is the head, which it exerts, or raises, like the umbo or umbileus of a buckler. This species of serpent is very frequently mentioned by authors; but so carelessly described, that it is not easy to determine which, if any, of the species known at present, may probably be called by this name. It is said to be common in Africa, and about the banks of the Nile; and Bellonius mentions a small serpent which he had met with in Italy, and which had a sort of callous excrescence on the forehead, which he takes to have been the aspis of the ancients. It is with the asp that Cleopatra is said to have despatched herself, and

prevented the designs of Augustus, who intended to have carried her captive to adorn his triumphal entry into Rome. But the fact is contested. Brown places it among the vulgar errors. The indications of that queen's having used the ministry of the asp, were only two almost insensible pricks found in her arm; and Plutarch says it is unknown of what she died. At the same time it must be observed, that the slightness of the pricks found in her arm furnishes no presumption against the fact; for no more than the prick of a needle-point dipt in the poison was necessary for the purpose. See the article SERPENT. Lord Bacon says, the asp is the least painful of all the instruments of death. He supposes it to have an affinity to opium, but to be less disagreeable in its operation; and his opinion seems to correspond with the accounts of most writers, as well as with the effects described to have been produced upon Cleopatra. The ancients had a plaister called δι Ασπιδων, made of this terrible animal, of great efficacy as a discutient of strumæ and other indurations, and used likewise against pains of the gout. The flesh and skin, or exuviæ of the creature, had also their share in the ancient materia medica.

ASPA, a town of Parthia, now called Ispahan.

ASPALATHUS, AFRICAN BROOM, a genus of the decandria order, diadelphia class of plants; ranking in the natural method under the thirty-second order, papilionaceæ. The calyx consists of five divisions; the pod is oval, and contains two seeds. Of this genus there are nineteen species; all of which are natives of warm climates, and must be preserved in stoves by those who would cultivate them here. The rose wood, whence the oleum Rhodii is obtained, is one of the species, but of which we have no particular description.

ASPALATHUS, in pharmacy, is also called lignum Rhodium, or rose wood; and by some Cyprus wood: the former on account of its sweet smell, or growth in the island of Rhodes; the latter from its being also found in the island of Cyprus. It was anciently in much repute, as an astringent and strengthener, but is now little used internally. In virtue, taste, smell, and weight, it resembles the lignum aloes; and in physic they are frequently substituted for each other. Aspalathus is chiefly used in scenting pomatums, and liniments.

ASPARAGIN, the name given to white transparent crystals, of a peculiar vegetable principle, which form in asparagus juice after it has been evaporated to the consistence of syrup. They are in the form of rhomboidal prisms, with a slight nauseous taste. They do not change vegetable blues; nor are they affected by hydro-sulphuret of potash, oxalate of ammonia, or acetate of lead; but lime extracts from them ammonia. Along with the asparagin crystals, others in needles of little consistency appear, analogous to mannite, from which the first can be easily picked out.

ASPARAGUS, SPARAGUS, SPERAGE, or SPARROW-GRASS, a genus of the monogynia order, and the hexandria class of plants; ranking in the natural method under the eleventh order, sarmentaceæ: CAL. quinquepartite, and erect; the three inferior petals bent outwards; the berry has three cells, and contains two seeds. There are ten species; but the only one cultivated in the gardens is the common asparagus, with an upright herbaceous stalk, bristly leaves, and equal stipula. The other species are kept only in the gardens of the curious, for the sake of variety. The garden asparagus is cultivated with great care for the use of the table. The propagation of this useful plant is from seed; and, as much of the success depends upon the goodness of the seed, it is much better to save it than to buy. The manner of saving it is this: Mark with a stick some of the fairest buds; and when they are run to berry, and the stalks begin to dry and wither, cut them up; rub off the berries into a tub, and, pouring water upon them, rub them about with your hands; the husks will break and let out the seed, and will swim away with the water in pouring it off; so that in repeating this two or three times, the seeds will be clean washed, and found at the bottom of the tub. These must be spread on a mat to dry, and in the beginning of February, must be sown on a bed of rich earth. They must not be sown too thick, and must be trod into the ground, and the earth raked over them smooth: the bed is to be kept clear of weeds all the summer; and in October, when the stalks are withered and dry, a little rotten dung must be spread half an inch thick over the whole surface of the bed. Next spring, the plants will be fit to plant out; the ground must therefore be prepared for them by trenching it well, and burying a large quantity of rotten dung in the trenches, so that it may lie at least six inches below the surface of the ground: when this is done, level the whole plot exactly, taking out all the loose stones. This is to be done just at the time when the asparagus is to be planted out; which must be in the beginning of March, if the soil is dry, and the season forward; but in a wet soil, it is better to wait till the beginning of April, which is about the season that the plants are beginning to shoot. The season being now come, the roots must be carefully taken up with a narrow-pronged dung-fork, shaking them out of the earth, separating them from each other, and observing to lay all their heads even, for the more conveniently planting them; which must be done in this manner:—Lines must be drawn, at a foot distance each, straight across the bed; these must be dug into small trenches of six inches deep, into which the roots must be laid, placing them against the sides of the trench, with their buds in a right position upwards, and so that, when the earth is raked over them, they may be two inches under the surface of the ground. Between every four rows, a space of two feet and a half should be left for walking in to cut the asparagus. When the asparagus is thus planted, a crop of onions may be sown on the ground, which will not at all hurt it. A month after this, the asparagus will come up, when the crop of onions must be thinned, and the weeds carefully cleared away. About August the onions will be fit to pull up. In October following, cut off the shoots of the asparagus, within two inches of the ground, clear well all

weeds away, and throw up the earth upon the beds, so as to leave them five inches above the level of the alleys. A row of coleworts may be planted in the middle of the alleys, but nothing must now be sown on the beds. In the spring the weeds must be hoed up, and all the summer the beds kept clear of weeds. In October they must be turned up and earthed again, as the preceding season. The second spring after planting, some of the young asparagus may be cut for the table. The larger shoots should only be taken, and these should be cut at two inches under ground, and the beds every year managed as in the second year. But as some people are very fond of early asparagus, the following directions are given, by which it may be obtained any time in winter:—Plant some good roots at one year old in a moist rich soil, about eight inches apart; the second and third year after planting, they will be ready to take up for the hot-beds; these should be made pretty strong, about three feet thick, with new stable dung that has fermented a week or more; the beds must be covered with earth six inches thick; then, against a ridge made at one end, begin to lay in your plants, without trimming or cutting the fibres; and between every row lay a little ridge of fine earth, and proceed thus till the bed is planted; then cover the bed two inches thick with earth, and encompass it with a straw band; and in a week, or as the bed is in the temper, put on the frames and glasses, and lay on three inches thick of fresh earth over the beds, and give them air and add fresh heat to them as it requires. These beds may be made from November till March, which will last till the natural grass comes on.

The roots have a bitterish mucilaginous taste, inclining to sweetness; the fruit has much the same kind of taste; the young shoots are more agreeable than either. Asparagus promotes appetite, but affords little nourishment. It gives a strong ill smell to the urine in a little time after eating it, and for this reason chiefly is supposed to be diuretic; it is likewise esteemed aperient and deobstruent; the root is one of the five called opening roots. Some suppose the shoots to be most efficacious; others, the root; and others, the bark of the root. Stahl is of opinion, that none of them have any great share of the virtues usually ascribed to them. Asparagus appears from experience to contribute very little either to the exciting of urine when suppressed, or increasing its discharge: and in cases where aperient medicines generally do service, this has little or no effect.

ASPASIA, among ancient physicians, a constrictive medicine for the pudenda muliebra. It consisted of wool, moistened with an infusion of unripe galls.

Aspasia, of Miletus, a courtezan, who settled at Athens under the administration of Pericles, and one of the most noted ladies of antiquity. She was of admirable beauty; yet her wit and eloquence, still more than her beauty, gained her extraordinary reputation among all ranks in the republic. In eloquence she surpassed all her contemporaries; and her conversation was so entertaining, and instructive, that notwithstanding the dishonorable commerce she carried on, persons of the first distinction, male and female, resorted to her house as to an academy; she even numbered Socrates among her hearers and admirers. She captivated Pericles in such a manner, that he dismissed his own wife, to espouse her; and, by her universal knowledge, irresistible elocution, and intriguing genius, she in a great measure influenced the administration of Athens. She was accused of having excited, from motives of personal resentment, the war of Peloponnesus; yet, calamitous as that long and obstinate conflict proved to Greece, and particularly to Athens, Aspasia occasioned still more incurable evils to both. Her example and instructions, formed a school at Athens, by which her dangerous profession was reduced into a system. The companions of Aspasia served as models for painting and statuary, and themes for poetry and panegyric. Nor were they merely the objects but the authors of many literary works, in which they established rules for the behaviour of their lovers, particularly at table; and explained the art of gaining the heart and captivating the affections. The dress, behaviour, and artifices of this class of women, became continually more seductive and dangerous; and Athens thenceforth remained the chief school of vice and pleasure, as well as of literature and philosophy.

ASPASTICUM, or Aspaticum, i. e. a greeting-house; from *ασπαζομαι*, I salute; in ecclesiastical writers, an apartment adjoining to the ancient churches, wherein the bishops and presbyters sat to receive the salutations of those who came to visit them, desire their blessing, or consult them.

AS'PECT, *v.* & *n.*, Aspec'table, Aspec'ted, Aspec'tion. Lat. *aspicio*, *aspectum*, (from the obsolete word *spicere*), to look towards. The appearance any thing presents when looked at; the point of view; the relation or influence which one thing has or bears with respect to another.

We see likewise the Scripture calleth Envy, an evil eye, and the astrologers call the evil influences of the stars, evil *aspects*; so that there still seemeth to be acknowledged in the act of envy, an ejaculation or irradiation of the eye. *Lord Bacon's Essays.*

The islands prince, of frame more than celestial,
Is rightly called the all-seeing Intellect;
All glorious bright such nothing is terrestrial;
Whose sun-like face, and most divine *aspect*,
No human sight may ever hope descrie;
For when himself on's self reflects his eye,
Dull and amazed he stands, at such bright majesty.
Fletcher's Purple Island.

If nature's concord broke
Among the constellations war were sprung,
Two planets, rushing from *aspect* malign
Of fiercest opposition, in mid sky
Should combat, and their jarring spheres confound.
Milton's Paradise Lost, book vi.

Happy in their mistake, those people, whom
The northern pole *aspects*; whom fear of death
(The greatest of all human fears) ne'er moves.
Temple.

To this use, of informing us what is in this *aspectable* world, we shall find the eye well fitted.
Ray on the Creation.

Her motions were steady and composed, and her *aspect* serious but cheerful; her name was Patience.
Addison.

Why does not every single star shed a separate influence, and have *aspects* with other stars of their own constellation? *Bentley's Sermons.*

With *aspect* mild, and elevated eye,
Behold him seated on a mount serene,
Above the fogs of sense and passion's storm:
Wrong he sustains with temper, looks on heaven,
Nor stoops to think his injurer his foe;
Nought but what wounds his virtue wounds his peace.
Young.

ASPECT, in astronomy and astrology, denotes the situation of the planets and stars with respect to each other. There are five different aspects. 1. Sextile aspect is when the planets or stars are 60° distant, and marked thus ✱. 2. The quartile, or quadrate, when they are 90° distant, marked □. 3. Trine, when 120° distant, marked △. 4. Opposition, when 180° distant, marked ☍. And, 5. Conjunction, both in the same degree, marked ☌. Kepler, who added eight new ones, defines aspect to be the angle formed by the rays of the two stars meeting on the earth, whereby their good or bad influence is measured; for it is to be observed that these aspects, being first introduced by astrologers, were distinguished into benign, malignant, and indifferent; the quartile and malignant being accounted malign; the trine and sextile, benign or friendly; and the conjunction indifferent.

ASPECT, in gardening, signifies exposure.

ASPECT, DOUBLE, is used in painting, where a single figure is so contrived, as to represent two or more different objects, either by changing the eye, or by means of angular glasses. See OPTICS.

ASPECT, in architecture. The aspect of the principal rooms of a house, demands the greatest attention from the architect, especially in an exposed situation. The south-east is the best for Britain; and the south and due east the next. The south-west is the worst, because from that quarter it rains oftener than from any other. A north aspect is gloomy, because deprived of sunshine; but woods look best when viewed from rooms with a north aspect, because all plants and trees are most luxuriant on the side next the sun. An aspect due east is nearly as bad as the north, because there the sun shines only early in the morning; and the aspect due west is intolerable, from the sun dazzling the eye through the greatest part of the day. Hence we may conclude, a square house placed with its front, opposite to the four cardinal points, will have one good and three bad aspects.

ASPEN or ASP. See POPLAR, of which it is a species. The leaves of this tree always tremble. The aspen or asp tree has leaves much the same with the poplar.

ASPER, in commerce, or aspre, a little Turkish silver coin, wherein most of the Grand Seignior's revenues are paid. The asper is worth something more than an English halfpenny. The only impression it bears, is that of the prince's name under whom it was struck. The pay of the Janissaries is from two to twelve aspers per diem.

ASPER, in grammar, an accent peculiar to the Greek language, marked thus (ʻ); and importing, that the letter over which it is placed ought to be strongly aspirated, or pronounced as if an *h* were prefixed.

ASPER, in ichthyology, a small fish caught in the Rhone, so called from the roughness of its scales. Its head is large, in proportion to its body, and of a pointed shape. It has no teeth, but its jaws are sharp to the touch. It is of a dark red color, with large black spots. It is good to eat, and is esteemed aperitive.

ASPERA ARTERIA, in anatomy, the windpipe or trachea. See ANATOMY.

ASPERJELLOUS, in botany, the name given by Michaeli to that genus of mosses, called by Dillenius and others, byssus.

ASPERGILE, or ASPERGILIUM, in antiquity, a long brush made of horse-hair, fixed to a handle, wherewith the lustral water was sprinkled on the people in lustrations and purifications. The ancients, instead of a brush, made use of branches of laurel and olive. It is also still applied to the instrument in Romish churches with which holy water is sprinkled

ASPERIFOLIÆ PLANTÆ, rough-leaved plants. The name of a class in Hermannus, Boerhaave, and Ray's methods, consisting of plants which have naked seeds, and whose leaves are rough to the touch. In Tournefort's system, these plants constitute the third section or order of the second class; and in Linnæus's sexual method, they make a part of the pentandria monogynia.

ASPERIFOLIATE, or ASPERIFOLIOUS, among botanists, such plants as are rough-leaved, having their leaves placed alternately on their stalks, and a monopetalous flower divided into five parts. They constitute the forty-ninth order of plants in the Fragmenta Methodi Naturalis of Linnæus, in which are these genera: tournefortia, cerinthe, symphytum, pulmonaria, anchusa, lithospermum, myosotis, heliotropium, cynoglossum, asperugo, lycopsis, echium, barrago: magis minusve, oleraceæ, mucilaginosæ, et glutinosæ sunt.

ASPERITY, the inequality of the surface of any body, which hinders the hand from passing over it freely. From the testimony of some blind persons, it has been supposed that every color hath its particular degree of asperity; though this has been denied by others. See the article BLIND.

ASPERN, a market town, castle, and lordship of Lower Austria, in the circle of lower Mannhartsberg, belonging to the count of Brenner, ten miles south east of Laba.

ASPERN, a market town of Austria, situated on a small arm of the Danube, on the north side of the river, at some distance below Vienna, the scene of a battle fought on the twenty-first and twenty-second of May, 1809, between Buonaparte and the Austrians. It was completely destroyed at the time, but has since been rebuilt.

ASPER'SE, } Lat. *ad*, and *spargo*, to scat-
ASPER'SION. } ter. To sprinkle or scatter; metaphorically to censure, to calumniate.

In the business of Ireland, besides the opportunity to *asperse* the king, they were safe enough.
Clarendon.

Curb that impetuous tongue; nor rashly vain,
And singly mad, *asperse* the sov'reign reign. *Pope*
Unjustly poets we *asperse*;
Truth shines the brighter clad in verse. *Swift.*

He set his voice
At highest pitch, and thus *aspers'd* the king.
Cowper's Iliad, book vi.

Legions of impure spirits were believed to take often possession of the bodies of men, from whence nothing could drive them but *aspersions* of holy water.
Bolingbroke's Essay on Human Knowledge.

ASPERUGO, small wild bugloss, in botany, a genus of the pentandria monogynia class; ranking in the natural method under the asperifoliæ. The calyx of the fruit is compressed, with folds flatly parallel, and sinuous. There are two species, viz. 1. A. Ægyptiaca, a native of Egypt. 2. A. procumbens, or wild bugloss, a native of Britain; which is eaten by horses, goats, sheep, and swine; but cows are not fond of it.

ASPERULA, Woodroof, in botany, a genus of the monogynia order, and the hexandria class of plants; ranking in the natural method under the forty-seventh order, stellatæ. The corolla is infundibuliform; and the capsule contains two globular seeds. There are two species; which both grow wild in Britain, and therefore are seldom admitted into gardens, viz. 1. A. cynanchica, found on chalky hills. The roots are used for dyeing red in Sweden. 2. A. odorata, a low umbelliferous plant, growing wild in woods and copses, and flowering in May. It has an exceeding pleasant smell, which is improved by moderate exsiccation; the taste is subsaline, and somewhat austere. It imparts its flavour to vinous liquors. Asperula is supposed medicinally to attenuate viscid humors, and strengthen the tone of the bowels; modern practice has nevertheless rejected it.

ASPEYTIA, a town of Spain, in Biscay, seated on the Urola, in a fine valley, near the districts of Loyola and Onis.

ASPHALITES, in anatomy, the fifth vertebra of the loins.

ASPHALTITES, a lake of Judea, so called from the great quantity of bitumen it produces; called also the Dead Sea; and from its situation the East, the Salt Sea, the Sea of Sodom, the Sea of the Desart, and the Sea of the Plain, in the sacred writings. It is enclosed on the east and west with high mountains; on the north it has the plain of Jericho; or, if we take in both sides of the Jordan, it has the Great Plain, properly so called, on the south, which is open, and extends beyond the reach of the eye. Josephus makes this lake 580 furlongs in length, from the mouth of the Jordan to the opposite end, that is about twenty-two leagues; and about 150 furlongs, or five leagues, in its greatest breadth; but our modern accounts commonly give it twenty leagues in length, and six or seven in breadth. On the west side of it is a kind of promontory, where the remains of Lot's metamorphosed wife were for a long time said to be visible. Josephus says this pillar was standing in his time; and Mr. Maundrell was shown a block or stump of it.

In what has been said and written of the Lake Asphaltites, fable is much blended with truth. We are told that it arose from the submersion of the vale of Siddim, where once stood, as is commonly reported, the three cities which perished in the miraculous conflagration, with Sodom and Gomorrah; and this lake has been regarded as a lasting monument of the just judgment of God, on the abominations for which they perished. It has been stated that its waters are so impregnated with salt, sulphur, and other bituminous matter, that nothing will sink or live in them; and that it emits such a horrid smoke that the very birds die in attempting to cross over it. The description likewise of the apples that grew about it, fair without, and only ashes and bitterness within, were looked upon as a further demonstration of God's anger. Travellers have also described the country round about as sulphureous, bituminous, and suffocating; and it has even been affirmed that the ruins of the five cities are still to be seen through the waters in clear weather.

It appears to be true, that the quantity of salt, alum, and sulphur, with which they are impregnated, render its waters so much specifically heavier (Dr. Pococke says one fifth) than fresh water, that bodies will not easily sink in them: yet that author and others assure us they have swam and dived in it. Dr. Pococke also, though he neither saw fish nor shells, tells us, on the authority of a monk, that fish had been caught in it; and M. Volney affirms that it is very common to see swallows skimming its surface, and dipping for the water necessary to build their nests. The soil around it, he adds, impregnated with salt, produces no plants; and the air itself, which becomes loaded with it from evaporation, and which receives also the sulphureous and bituminous vapours, cannot be favorable to vegetation: hence the deadly aspect which reigns around this lake. In other respects the ground about it, however, is not marshy, and its waters are limpid and incorruptible, as must be the case with a dissolution of salt. On the south-west shore are mines of fossil salt, of which I have brought away several specimens. They are situated on the side of the mountains which extend along that border; and from time immemorial have supplied the neighbouring Arabs, and even the city of Jerusalem. We find also on this shore fragments of sulphur and bitumen, which the Arabs convert into a trifling article of commerce: as also hot fountains and deep crevices, which are discovered at a distance by little pyramids built on the brink of them. Likewise a sort of stone, which on rubbing emits a noxious smell, burns like bitumen, receives a polish like white alabaster, and is used for the paving of court-yards. At intervals we also meet with unshapen blocks, which prejudiced eyes mistake for mutilated statues, and which pass with ignorant and superstitious pilgrims for monuments of the adventure of Lot's wife; though it is no where said she was metamorphosed into stone like Niobe, but into salt, which must have melted the ensuing winter.'

This lake is at present called by the Arabs Almotanah and Bahret Lout, and Ula Deguis by the Turks. It is remarkable that but one European has hitherto succeeded in making the circuit of it; and Nau, who in his travels had recorded this expedition of Daniel, abbot of St. Saba, states on his authority, that 'the Dead Sea, at its extremity, is separated as it were into two parts, and that there is a way by which you may walk across it, being only mid-leg deep, at

least in summer; that there the land rises, and bounds another small lake of a circular or rather oval figure, surrounded with plains and mountains of sand, and that the neighbouring country is peopled by innumerable Arabs. Seetzen in the year 1805-6 passed round the southern extremity, but a short account only of his route, in a correspondence with M. de Zach, printed by the Palestine Association in 1810, has yet appeared. Mr. Burckhardt was unable to reach its borders. He was informed in the neighbourhood that there were spots in a ford about three hours north of Szaffye (the extreme southern point of the lake), in which the water is quite hot, and the bottom of red earth. This ford may be crossed in three hours and a half: the water here is generally not more than two feet deep, and it is probable there are hot springs in the bottom. It is so strongly impregnated with salt that the skin peels off the legs of those who wade across it.

M. de Chateaubriand, who visited this country in 1807, has given the first decided testimony that the Lake Asphaltites abounds with fish. He reached it when it was dark, and passed the night among some Arab tents. 'About midnight,' says he, 'I heard a noise upon the lake, and was told by the Bethlehemites, who accompanied me, that it proceeded from legions of small fish, which come out and leap about the shore.' He speaks in the following terms of its saline properties; 'The first thing I did on alighting was to walk into the lake up to my knees, and to taste the water. I found it impossible to keep it in my mouth. It far exceeds that of the sea in saltness, and produces upon the lips the effect of a strong solution of alum. Before my boots were completely dry they were covered with salt: our clothes, our hats, our hands, were in less than three hours impregnated with this mineral.'

A modern Scottish traveller, Mr. Gordon of Clunie, who bathed in it, brought home a phial of its water, and Dr. Marcet found its specific gravity to be 1·211; a degree of density, says he, 'not to be met with in any other natural water.' The whole process with its results is detailed in the Philosophical Transactions for 1807. It was found that 100 grains of the water contain the following substances in the undermentioned proportions:

	grains.
Muriat of lime . .	3,920
Muriat of magnesia	10,246
Muriat of soda . .	10,360
Sulphat of lime .	0,054
	24,580

Another celebrated chemist, M. Klaproth, who procured a specimen brought from the East by the late Mr. Tatum, found the specific gravity to be 1·245 instead of 1·211; agreeing in this respect more nearly with Macquer and Lavoisier, who stated it at 1·240. But the specific gravity of Dr. Marcet's specimen may have been less from its having been taken from the lake not far from the mouth of the Jordan, where it might be somewhat diluted.

Dr. Clarke says that the inhabitants of the country still regard the Dead Sea with feelings of terror; owing probably to the tradition that its waters cover the engulphed cities of Sodom and Gomorrah, or to the ideas entertained of the peculiar insalubrity of its exhalations. But it is greatly to be regretted that this traveller was prevented by the Arabs from exploring the lake, which he only saw at a distance.

Hasselquist asserts the apples of Sodom to be the production of the solanum melongena of Linnæus. This is found, he says, in great abundance round Jericho and in the neighbourhood of the Dead Sea The dust with which it is sometimes filled is the work of an insect (tenthredo) which pulverises the whole of the inside, leaving the rind entire and unchanged in color. M. Seetzen saw at Kerek a species of cotton which he was told was produced from a fruit resembling a pomegranate, growing on the borders of the Dead Sea, and he thinks it is this pulpless fruit which is the malum sodomeum. Viscount Chateaubriand saw a third fruit, which he conjectures to be the famous apples in question, growing on a thorny shrub; and which, before it is ripe is filled with a corrosive and saline juice; when dried it yields a blackish seed, which may be compared to ashes, and which in taste resembles bitter pepper.

Asphaltum, Bitumen Judaicum, or Jew's Pitch, is a light solid bitumen of a dusky color on the outside, and a deep shining black within; of very little taste, and having scarcely any smell, unless heated, when it emits a strong pitchy one. It is found in a soft or liquid state on the surface of the Dead Sea, and by age grows dry and hard. The same kind of bitumen is met with likewise in the earth in China, America, and in some places of Europe, as the Carpathian Hills, France, &c. The most abundant deposits of this substance, in modern times, are said to be in the islands of Barbadoes and Trinidad; in the former it is found as an highly bituminous earth, but, being in a state of great impurity, is only used as a coal for fuel. In the latter island is a complete lake of this substance. A specimen from Albania of the specific gravity of 1·205, examined by M. Klaproth, was found to be soluble only in oils and in æther. Five parts of rectified oil of petroleum dissolved one of the asphaltum without heat in twenty-four hours; 100 grains of asphaltum afforded 32 of bituminous oil, 6 of water faintly ammoniacal, 30 of charcoal, 7½ of silex, 7½ of alumina, ¾ of lime, 1¼ oxide of iron, ½ oxide of manganese, and 36 cubic inches of hydrogen gas. The true asphaltum was formerly used in embalming the bodies of the dead. At present the thick and solid asphalta are employed in Egypt, Arabia, and Persia, as pitch for ships; the fluid ones for burning in lamps and for varnishes. Some writers relate that the walls of Babylon and the temple of Jerusalem were cemented with bitumen instead of mortar. This much is certain, that a true natural bitumen, that for instance which is found in the district of Neufchatel, proves an excellent cement for walls, pavements, and other purposes; uncommonly firm, very durable in the air, and not penetrable by water. The watch and clock-makers use a com-

position of asphaltum, fine lamp black, and oil of spike or turpentine, for drawing the black figures on dial-plates; this composition is prepared chiefly at Augsburg and Nuremburg.

ASPHODEL, Asphodelus, or King's Spear, in botany, a genus of the monogynia order, and hexandria class of plants. The calyx is divided into six parts; and the nectarium consists of six valves covering the nectarium. There are five species, viz. 1. A. albus, the white asphodel, with keel-shaped leaves, has roots composed of small fibres and knobs at bottom; the leaves are long, almost triangular, and hollow like the keel of a boat; the stalks seldom rise above two feet high, and divide into several spreading branches; these are terminated by loose spikes of white flowers. 2. A. luteus, or common yellow asphodel, has roots composed of many thick fleshy fibres, which are yellow, and joined to a head at the top; from whence arise strong round single stalks nearly three feet high, garnished on the upper part with yellow star-shaped flowers, which appear in June, and the seeds ripen in autumn. 3. A. nonramosus, or the unbranched asphodel, roots like the ramosus (which see), but the leaves are longer and narrower; the stalks are single; the flowers appear at the same time with the former, are of a purer white, and grow in longer spikes. 4. A. ramosus, or branching asphodel, has roots composed of fleshy fibres, to each of which is fastened an oblong bulb as large as a small potatoe; the leaves are long and flexible, having sharp edges; between these come out the flower-stalks, which arise more than three feet high, sending forth many lateral branches. They come out in the beginning of June, and the seeds ripen in autumn. 5. A. stulosus, or annual branching spiderwort, hath roots composed of many yellow fleshy fibres; the leaves are spread out from the crown of the root, close to the ground, in a large cluster; these are convex on their underside, but plain above. The flower-stalks rise immediately from the root, and grow about two feet high, dividing into three or four branches upward, which are adorned with white starry flowers, with purple lines on the outside. These flower in July and August, and their seeds ripen in October.

The way to increase these plants is by parting their roots in August, before they shoot up their fresh green leaves. They may also be raised from seeds sown in August; and the August following the plants produced from these may be transplanted into beds, and will produce flowers the second year. They must not be planted in small borders among tender flowers, for they will draw away all the nourishment and starve every thing else. The Lancashire asphodel is thought to be very noxious to sheep, whenever through poverty of pasture they are necessitated to eat it; although they are said to improve much in their flesh at first, they afterwards die with symptoms of a diseased liver. This is the plant of which such wonderful tales have been told by Pauli Bartholine, and others, of its softening the bones of such animals as swallow it; and which they thence called gramen ossifragum. Horned cattle eat it without any ill effect.

ASPHURELATA, in natural history, are semi-metallic fossils, fusible by fire, and not malleable in their purest state, being in their native state intimately mixed with sulphur and other adventitious matter, and reduced to what are called ores. Of this series of fossils there are five bodies, each of which makes a distinct genus; viz, antimony, bismuth, cobalt, zinc, and quicksilver.

ASPHYXIA; from *α* privative, and *σφυξις*, a pulse; in medicine, the state during life in which the pulsation of the heart and arteries cannot be perceived. Medical writers usually divide this suspended animation into lipothymia, apoplexia, syncope, submersio, suspensio, and congelatio. Mr. Sage has published a treatise recommending the volatile alkali fluor as the most effectual remedy in asphyxies. Asphyxia is also used by some for a privation of pulse in a part of the body, e. g. in the arm, &c.

The following extraordinary case of asphyxia is related by Dr. Cheyne, in his English Malady, p. 307. '*Case of the Hon. Colonel Townshend.*—Col. Townshend, a gentleman of excellent natural parts, and of great honor and integrity, had for many years been afflicted with a nephritic complaint, attended with constant vomitings, which had made his life painful and miserable. During the whole time of his illness he had observed the strictest regimen, living on the softest vegetables, and lightest animal foods, drinking asses milk daily, even in the camp; and for common drink, Bristol water, which the summer before his death he had drank on the spot. But his illness increasing, and his strength decaying, he came from Bristol to Bath in a litter, in autumn, and lay at the Bell-inn. Dr. Baynard (who is since dead) and I were called to him, and attended him twice a day for about the space of a week, but his vomitings continuing still incessant and obstinate against all remedies, we despaired of his recovery. While he was in this condition he sent for us early one morning: we waited on him with Mr. Skrine, his apothecary, (since dead also); we found his senses clear and his mind calm, his nurse and several servants were about him. He had made his will and settled his affairs. He told us he had sent for us to give him some account of an odd sensation he had for some time observed and felt in himself; which was that, composing himself, he could die or expire when he pleased, and yet, by an effort or some how, he could come to life again; which it seems he had sometimes tried before he had sent for us.

'We heard this with surprise; but as it was not to be accounted for from any common principles, we could hardly believe the fact as he related it, much less give any account of it, unless he should please to make the experiment before us, which we were unwilling he should do, lest in his weak condition he might carry it too far. He continued to talk very distinctly and sensibly above a quarter of an hour about this (to him) surprising sensation, and insisted so much on our seeing the trial made, that we were at last forced to comply. We all three felt his pulse first; it was distinct, though small and thready; and his heart had its usual beating. He composed him-

self on his back, and lay in a still position some time; while I held his right hand, Dr. Baynard laid his hand on his heart, and Mr. Skrine held a clear looking-glass to his mouth. I found his pulse sink gradually, till at last I could not feel any by the most exact and nice touch. Dr. Baynard could not feel the least motion in his heart, nor Mr. Skrine the least soil of breath on the bright mirror he held to his mouth; then each of us by turns examined his arm, heart, and breast; but could not, by the nicest scrutiny, discover the least symptom of life in him. We reasoned a long time about this odd appearance as well as we could, and all of us judging it inexplicable and unaccountable, and finding he still continued in that condition, we began to conclude that he had indeed carried the experiment too far, and at last were satisfied he was actually dead, and were just ready to leave him. This continued about half an hour, by nine o'clock in the morning, in autumn. As we were going away we observed some motion about the body, and, upon examination, found his pulse and the motion of his heart gradually returning; he began to breathe gently, and speak softly; we were all astonished to the last degree at this unexpected change, and after some further conversation with him, and among ourselves, went away fully satisfied as to all the particulars of this fact, but confounded and puzzled, and not able to form any rational scheme that might account for it. He afterwards called for his attorney, added a codicil to his will, settled legacies on his servants, received the sacrament, and calmly and composedly expired about six o'clock that evening. Next day he was opened (as he had ordered); his body was the soundest and best made I had ever seen; his lungs were fair, large, and sound, his heart big and strong, and his intestines sweet and clean; his stomach was of a due proportion, the coats sound and thick, and the villous membrane quite entire; but when we came to examine the kidneys, though the left was perfectly sound and of a just size, the right was about four times as big, distended like a blown bladder, and yielding as if full of pap; he having often passed a wheyish liquor, after his urine, during his illness. Upon opening this kidney we found it quite full of a white chalky matter, like plaster of Paris, and all the fleshy substance dissolved and worn away by what I called a nephritic cancer. This had been the source of all his misery; and the symptomatic vomitings, from the irritation on the consentient nerves, had quite starved and worn him down. I have narrated the facts as I saw and observed them, deliberately and distinctly, and shall leave the philosophic reader to make what inferences he thinks fit. The truth of the material circumstances I will warrant.'

ASPIC, in botany, a plant which grows in plenty in Languedoc, in Provence, and especially on the mountain of St. Baume in France. It is a kind of lavender, nearly like what grows in our gardens, both with regard to the figure and color of its leaves and flowers. The botanists call it lavendula mas, or spica nardi, pseudo nardus, &c.

ASPILATES, or ASPLENITES, in the writings of the ancients, the name of a stone, famous for its virtues against the spleen, and many other disorders; it was to be applied externally, and fastened to the part with camel's hair.

ASPINY, or ANGLIARY-THORN, a drug used in medicine, on which particular duties are imposed by the tariff of the custom-house at Lyons.

ASPIRE', ASPIR'ANT, ASPIR'ATE, *v. n.* & *adj.*, ASPIRA'TION, ASPIRE'MENT, ASPIR'ER, ASPIR'ING. *Aspiro;* from *ad*, and *spiro*, to breathe; to search after diligently, and in consequence of the arduous exertion to breathe frequently, and with apparent difficulty; to pant after; to pursue with eagerness an object deemed worthy of our ambition; to desire with eagerness. To aspirate is to breathe strongly upon a letter in sounding it.

'Tis he; I ken the manner of his gait:
He rises on his toe; that spirit of his
In *aspiration* lifts him from the earth.
Shakspeare.

Horace did ne'er *aspire* to epic bays;
Nor lofty Maro stoop to lyrick lays.
Roscommon.

Till then a helpless, hopeless, homely swain;
I sought not freedom, nor *aspired* to gain. *Dryden.*

Aspiring to be gods, if angels fell,
Aspiring to be angels, men rebel. *Pope.*

H is only a guttural *aspiration*, i. e. a more forcible impulse of the breath from the lungs. *Holder.*

A soul inspired with the warmest *aspirations* after celestial beatitude, keeps its powers attentive. *Watts.*

Know thine own worth, and reverence the lyre.
Wilt thou debase the heart which God refined?
No! let thy heaven-taught soul to heaven *aspire*,
To fancy, freedom, harmony, resign'd;
Ambition's groveling crew for ever left behind.
Beattie's Minstrel.

Some more *aspiring* catch the neighbouring shrub,
With clasping tendrils, and invest her branch.
Cowper.

Ye stars! which are the poetry of heaven!
If in your bright leaves we would read the fate
Of men and empires,—'tis to be forgiv'n,
That in our *aspirations* to be great,
Our destinies o'erleap their mortal state,
And claim a kindred with you;———
Lord Byron's Childe Harold.

ASPIUS, in ichthyology, a species of the cyprinus, belonging to the abdominal order. It is met with in the lakes of Sweden.

ASPORTATION. Lat. *ad*, and *porto*, to carry; a carrying to.

A bare removal from the place in which he found the goods, though the thief does not quite make off with them, is a sufficient asportation or carrying away. *Blackstone.*

ASPOTAGOEN MOUNT, a sea-mark on the coast of Nova Scotia, from which ships bound from Europe to Halifax generally look out. It rises on the promontory, between Mahone and Margaret's bay, to about 500 feet above the level of the sea.

AS'PRE, AS'PRELY, ASPRENESS, AS'PERATE, ASPE'RITY, AS'PEROUS. Lat. *asper*, rough in its nature: applied to that which is harsh, rugged, grating, bitter, morose.

Black and white are the most *asperous* and unequal of colours; so like, that it is hard to distinguish them: black is the most rough. *Boyle.*

I hope it is no very cynical *asperity*, not to confess obligations where no benefit has been received, or to be unwilling that the public should consider me as owing to a patron, that which Providence has enabled me to do for myself. *Dr. S. Johnson.*

The patience of Job is proverbial. After some of the convulsive struggles of our irritable nature, he submitted himself, and repented in dust and ashes. But even so, I do not find him blamed for reprehending, and with a considerable degree of *asperity*, those ill-natured neighbours of his who visited his dunghill to read moral, political, and œconomical lectures on his misery. *Burke.*

ASP'Y, *v.* & *n.* See ESPY.

In due season, as she alway *aspied*
Euery thing to execute conueniently,
The one louer first frendly she eied,
The second she offred the cuppe curtesly.
Chaucer. The Rein of Loue.

For Ion seide to Eroude, it is not leveful to thee to have the wyf of thi brother, and Erodias leide *aspies* to him and wolde sle him and myghte not.
Wiclif. Mark, ch. vi.

ASRAEL, the angel, according to the Mahommedan system, who is appropriated to take care of the souls of those who die.

ASS,
AS'ININE,
ASS'LIKE.
} Lat. *asinus*, a well known animal.

You have among you many a purchas'd slave;
Which, like your *asses* and your dogs and mules,
You use in abject and in slavish part,
Because you bought them. *Shakspeare.*

You shall have more ado, to drive our dullest youth, our stocks and stubs, from such nurture; than we have now, to hale our choicest and hopefullest wits, to that *asinine* feast of sow-thistles and brambles. *Milton.*

Ass, in zoology. See EQUUS.

Ass, CORONATION OF THE, in antiquity, was a part of the ceremony of the feast of Vesta, wherein the bakers put crowns on the heads of these quadrupeds; Ecce coronatis panis dependet asellis! Hence, in an ancient calendar, the ides of June are thus denoted: Festum est Vestæ. Asinus coronatur! This honor it seems was done the beast, because, according to the mythology, by its braying it had saved Vesta from being ravished by the Lampsacan god. Hence the formula, Vestæ delicium est asinus.

ASSAC, or ASSAX, in the materia medica of the ancients, the name given by the Arabians to the gum ammoniac of the Greeks; but by many of the qualities attributed to this drug it does not appear to be the same that is now called so.

ASSACH, or ASSATH, a kind of purgation, anciently used in Wales, by the oaths of 300 men.

ASSAI, in music, signifies quick; or, according to others, that the motion of the piece be kept in a middle degree of quickness or slowness: as, assai allegro, assai presto. See ALLEGRO and PRESTO.

ASSAIL',
ASSAIL'ABLE,
ASSAIL'ANT, *v.* & *adj.*
ASSAIL'ER,
ASSAIL'MENT,
} Fr. *assaillir*, Lat. *adsalire*, to leap upon. To assault; to make a sudden and vehement attack by various means of annoyance.

So, when he saw his flatt'ring arts to fail,
With greedy force he 'gan the fort t' *assail.*
Faerie Queene

I'll put myself in poor and mean attire,
And with a kind of umber smirch my face;
The like do you: so shall we pass along,
And never stir *assailants.* *Shakspeare.*

My gracious lord, here in the parliament
Let us *assail* the family of York. *Id.*

She will not stay the siege of loving terms,
Nor bide th' encounter of *assailing* eyes. *Id.*

How have I fear'd your fate! but fear'd it most,
When love *assail'd* you on the Libyan coast.
Dryden.

Prompt to *assail* and careless of defence,
Invulnerable in his impudence;
He dares the world; and eager of a name,
He thrusts about, and jostles into fame.
Id. Hind and Panther.

All books he reads, and all he reads *assails*,
From Dryden's Fables down to D—y's Tales.
Pope.

Sensible of their own force, and allured by the prospect of so rich a prize, the northern barbarians, in the reign of Arcadius and Honorius, *assailed* at once all the frontiers of the Roman empire. *Hume.*

When winds the mountain oak *assail*,
And lay its glories waste,
Content may slumber in the vale,
Unconscious of the blast. *Beattie.*

ASSAM, or ASHAM, a country between Bengal and Thibet, 700 miles in length, by about 70 in breadth. It is intersected by the Brahmapootra and several rivers. On the north it is bounded by the mountains of Bootan and Thibet, on the south by the Garrow mountains, on the west by Bengal and Bisnee, and on the east by the tributaries of Ava and China. Assam is very fertile, and produces a considerable quantity of gold, found in the beds of the rivers; it also yields ivory, lac, pepper, silk, and cotton, and exports a considerable quantity of borax and musk, said to be procured from Bootan and Thibet. Its imports from Bengal are principally salt, various European commodities, and a few fine muslins. The inhabitants are genuine Hindoos, and are very shy of permitting foreigners to come among them. During the period that the Afghans and Moguls had possession of Bengal they frequently invaded this country, and even took possession of Ghergong the capital, but the unhealthiness of the climate compelled them always to retire with great loss. In the year 1793 a detachment of the East India Company's troops, under the command of Colonel Welsh, entered Assam for the purpose of reinstating the rajah Surjee Deo; and, in consequence of the services then rendered him, the rajah established a reciprocal liberty of commerce between himself and the British; and it was finally agreed that no European merchant or adventurer, of any description, should be allowed to fix his residence in Assam, without having previously obtained the permission of the British government, and of Maha Rajah Surjee Deo, of Assam.

ASSANCALA, or ASSANCALE, a strong town in Armenia, near the river Arras, in the road between Erzerum and Erivan, noted for its hot baths. It stands on a high hill, twenty-two miles east of Erzerum; the walls are built in a spiral line all round the rock, and strengthened

with square towers. The ditches are about two fathoms over, cut out of hard rock.

ASSAPOORY, in natural history, a name given by the people of the East Indies to a peculiar species of slate, which they use in medicine, reducing it to powder, and strewing it on burning coals that the sick person may receive the fumes of it. It is principally used for children when they are disordered by taking cold. The smell of it, while burning, is very offensive.

ASSARIUM, a small copper coin, being a part of the as. The word is used by Suidas indifferently with *οβολος*, and *νομισμα*, to denote a small piece of money; in which he is followed by Cujacius, who defines *ασσαριον*, by minimus æris nummus. We find mention of the assarion in Matthew, chap. x. ver. 29., translated a farthing.

ASSARON, an ancient Jewish measure of capacity, equal to the tenth part of an ephah. The assaron is the same with the omer. Josephus calls it *εσσαρον*; in the Hebrew it is written assarith. It was the measure of manna appointed for each person.

ASSAS'SIN, *v.* & *n.* } The etymology of
ASSAS'SINACY, } this word has given
ASSAS'SINATE, *v.* & *n.* } rise to much learned
ASSASSINA'TION. } discussion, and the question is still undecided. Applied to one who attacks and kills those unprepared for defence, by treachery, or sudden violence.

It were done quickly; if th' *assassination*
Could trammel up the consequence. *Shakspeare.*

Such usage as your honourable lords
Afford me, *assassinated* and betray'd;
Who durst not, with your whole united pow'rs,
In fight withstand one single and unarm'd.
Milton.

The Syrian king; who, to surprise
One man, *assassin* like, had levy'd war,
War unproclaim'd. *Id.*

The duke finished his course by a wicked *assassination*. *Clarendon.*

In the very moment, as the knight withdrew from the duke, this *assassinate* gave him, with a back blow, a deep wound into his left side. *Wotton.*

The old king is just murdered; and the person that did it is unknown—Let the soldiers seize him, for one of the *assassinates*; and let me alone, to accuse him afterwards. *Dryden.*

Here hired *assassins* for their gain invade;
And treach'rous pois'ners urge their fatal trade.
Creech.

When she hears of a murder, she enlarges more on the guilt of the suffering person, than of the *assassin*. *Addison.*

Orestes brandish'd the revenging sword;
Slew the dire pair; and gave to fun'ral flame
The vile *assassin*, and adult'rous dame, *Pope.*
Useful, we grant; it serves what life requires;
But, dreadful too, the dark *assassin* hires. *Id.*

ASSASSINS, a tribe or clan in Syria, called also Ismaelians and Batanists, or Batenians. These people probably owed their origin to the Karmatians, a famous heretical sect among the Mahommedans, who settled in Persia about the year 1090; whence, in process of time, they sent a colony into Syria, where they became possessed of a considerable tract of land among the mountains of Lebanon, extending itself from the neighbourhood of Antioch to Damascus. The first chief and legislator of this extraordinary tribe was Hassan Sabah, a subtle impostor; who, by his artifices, made fanatical and implicit slaves of his subjects. Their religion was compounded of that of the Magi, the Jews, the Christians, and the Mahommedans: but the capital article of their creed was to believe that the Holy Spirit resided in their chief; that his orders proceeded from God himself, and were real declarations of the divine pleasure. To this monarch the orientals gave the name of Scheik: but he is better known in Europe by the name of the Old Man of the Mountain. This chief, from his residence on mount Lebanon, sent, like a vindictive deity, inevitable death to all quarters of the world; and many sovereigns paid secretly a pension to the Scheik, for the safety of their persons. The Knights Templars alone dared to defy his secret machinations and open force. Indeed, they were a permanent dispersed body, not to be cut off by massacres or assassinations. In 1090, Mâlek Shâh, third sultan of the Seljukians, of Iran, sent a messenger to Hassan, the Old Man of that period, calling on him for obedience, and accompanying the demand with threats in the case of his refusal. Hassan desired the ambassador might be admitted; and having assembled around him his troops, commanded one of them to draw his dagger, and plunge it into his own breast; the man, without the slighest hesitation, stabbed himself to the heart, and fell dead at his sovereign's feet. He then commanded a second to precipitate himself from the nearest tower; and was instantaneously obeyed. 'Go,' said Hassan, 'to the sultan, your master, and inform him, that I have no other reply to make him, excepting that I have seventy thousand troops equally obedient with those you have this day witnessed.' The sultan took the hint; and having, as Ebn Amed states, other matters in his hands, thought it not advisable to prosecute a war against this prince.

In 1192, the assassins penetrated the palace of Conrade, marquis of Montserrat, who had displeased them, and put him to death. In 1213, they assassinated Lewis of Bavaria. Hulakn, a khan of the Mogul Tartars, in the year 655 of the Hegira, or 1254 of the Christian era, entered their country, and dispossessed them of several places. In 1257, the Tartars conquered them and killed their prince; but it was not till 1272, that they were totally extirpated; an achievement owing principally to the conduct and intrepidity of the Egyptian forces sent against them by the sultan Bibaris.

ASSAULT', *v.* & *n.* } *Assilio, assultum.* See
ASSAULT'ING, *n.* } ASSAIL.
ASSAULT'ABLE,
ASSAULT'ER.

Themselves at discord fell,
And cruel combat joined in middle space,
With horrible *assault* and fury fell.
Faerie Queene.

It hath been ever a dangerous policy of Satan to *assault* the best; he knows that the multitude, as we say of bees, will follow their master.
Hall's Contemplations.

After some unhappy *assaults* upon the prerogative

by the parliament, which produced its dissolution, there followed a composure. *Clarendon.*

Theories built upon narrow foundations, are very hard to be supported against the *assaults* of opposition. *Locke.*

The king granted the Jews, to gather themselves together, and to stand for their life, to destroy all the power, that would *assault* them. *Esther*, viii. 11.

Before the gates, the cries of babes new-born,
Whom fate had from their tender mothers torn,
Assault his ears. *Dryden.*

Now cursed steel, and more accursed gold,
Gave mischief birth, and made that mischief bold;
And double death did wretched man invade,
By steel *assaulted*, and by gold betray'd. *Id.*

Neither liking their eloquence, nor fearing their might, we esteemed few swords, in a just defence, able to resist many unjust *assaulters*. *Sidney.*

This just rebuke inflamed the Lycian crew,
They join, they thicken, and th' *assault* renew;
Unmov'd th'embodied Greeks their fury dare,
And fix'd, support the weight of all the war.
Pope. Homer's Iliad, xii. 505.

Assault, in law, is an attempt to beat another, and may be committed without touching him: as if one lifts up his cane or fist in a threatening manner at another; or strikes at him, but misses him; this is an assault, insultus, which Finch describes to be 'an unlawful setting upon one's person.' This also is an inchoate violence, amounting considerably higher than bare threats; and, therefore, though no actual suffering is proved, yet the party injured may have redress by action of trespass vi et armis, wherein he shall recover damages as a compensation for the injury.

Assault, in the military art, a furious effort made to carry a fortified post, camp, or fortress, wherein the assailants do not screen themselves by any works: while the assault continues, the batteries cease, for fear of killing their own men.

ASSAY', *v.* & *n.* Fr. *essayer*, Ital. *assagiare*, to try, examine, prove; to submit to experiment; to test.

One, that to bounty never cast his mind;
No thought of honour never did *assay*
His baser breast. *Spenser.*

She heard with patience all, unto the end;
And strove, to master sorrowful *assay*.
Faerie Queene.

Gray and Bryan obtained leave of the general, a little to *assay* them; and so, with some horsemen, charged them home. *Hayward.*

What unweighed behaviour hath this drunkard picked out of my conversation, that he dares in this manner *assay* me? *Shakspeare.*

Be sure to find,
What I foretell thee; many a hard *assay*
Of dangers, and adversities, and pains,
Ere thou of Israel's sceptre get fast hold. *Milton.*

The men he prest but late
To hard *assays* unfit, unsure y need;
Yet arm'd to point, in well attempted plate.
Fairfax.

She thrice *assay'd* to speak; her accents hung,
And falt'ring dy'd unfinish'd on her tongue,
Or vanish'd into sighs: with long delay
Her voice return'd; and found the wonted way.
Dryden's Fables.

Assaying, or Essaying, in metallurgy, is a method of ascertaining the actual quantity of pure gold or silver in a given metallic mass. The term might, with equal propriety, be applied to ascertaining the presence and quantity of any metal, perfect or imperfect, in a mass of ore: but it has, from the universal value of the pure or precious metals, been gradually appropriated to the best modes of separating them from all admixture, the baser metals being considered by the assayer as of no value or consideration. We thus, therefore, apply the term in this paper; referring to the article Metallurgy, and the names of other metallic ores, in their alphabetical places, for more general observations.

Assaying is a species of chemical analysis, owing its origin probably, like the rest of the modern terms of chemistry, to the alchemy of darker ages. In this country the Liber Niger Scacarii, cited by Du Cange, attributes the first assay of money to the bishop of Salisbury, a royal treasurer, in the reign of Henry I. It states, that if the examined money was found to be deficient above sixpence in the pound, it was not deemed lawful money of the king, Du Cange, Gloss. i. p. 343. And thus is explained the first application of the terms arsas and arsuram, to money, in the Exchequer-book. But, it is clear, that some species of assay was practised by our ancestors as early as the Norman conquest, Doomsday-book expressly stating, vol. i. f. 15, 16, that £65 of coined money was only worth £50 in pure silver, 'according to the assay of the Mint.' This is the passage: 'Totum manerium T. R. E. et post valuit xl. libras. Modo similiter xl. lib. Tamen reddit 2 lib. ad arsuram et pensum quæ valent lxv. lib.' It also appears, by the same authority, that the king had this right of assay in several places beside the capital. It is remarkable, as Mr. Turner has observed, that we have no Anglo-Saxon gold coins, though numerous silver coins of that period have come down to us. That learned historian thinks, that both gold and silver uncoined, were, however, in circulation at this date. According to Dr. Henry's account of the conduct of Henry VIII. in respect to the coinage, it became indeed, most important that some system should be adopted for regulating the standard value of our coins.

'That monarch,' he remarks, 'after he had squandered all his father's treasures, the grants he had received from parliament, and the great sums he had derived from the dissolution of the religious houses, began to diminish his coins both in weight and fineness. This diminution at first was small, in hopes, perhaps, that it would not be perceived; but, after he had got into this fatal career, he proceeded by rapid steps to the most pernicious lengths. In the thirty-sixth year of his reign, silver money of all the different kinds was coined, which had only one-half silver and the other half alloy. He did not even stop here; in the last year of his reign, he coined money that had only four ounces of silver and eight ounces of alloy in the pound weight; and the nominal pound of this base money was worth only 9*s.* 3¾*d.* of our present money. He began to debase his gold coins at the same time, and proceeded by the same degrees. But it would be tedious to follow him in every step. In this degraded and debased condition Henry

the Eighth left the money of his kingdom to his son and successor Edward the Sixth. This shameful debasement of the money of his kingdom, was one of the most imprudent, dishonorable, and pernicious measures of his reign: it was productive of innumerable inconveniences and great perplexity in business of all kinds; and the restoration of it to its standard purity was found to be a work of great difficulty,' Henry's History of Great Britain, vol. xii. p. 336, 337. It is worthy of observation, that since that period, we have had no such capricious and nefarious attempts; and the regulations of the royal British Mint may now be quoted as at once most scientific and effective.

The art, to which this paper is devoted, consists of two distinct branches or operations, the separation of alloy, or base metals, from the precious ores, accomplished by what is technically called cupellation; and the separation of the precious metals, gold, platina, and silver from each other, called quartation and parting.

The separation of gold, silver, and platina, from baser metals, is conducted by exposing the whole metallic mass, in which they are supposed to be contained, mixed with a certain portion of lead, to a strong heat, in a shallow crucible, made of burned bones, called a cupel; which is placed in a muffle or small earthen oven, fixed in the midst of a furnace. The lead now vitrifies, or becomes converted into a glassy calx, which dissolves the imperfect metals: and this calx, with those metals which it absorbs, soaks into the cupel, and leaves the precious metals in a state of purity. 'In proportion to the violence of the heat,' says Dr. Aikin, 'is the density of the fume, the violence with which it is given off, the convexity of the surface of the globule of melted matter, and the rapidity with which the vitrified oxide circulates (as it is termed), or falls down the sides of the metal. As the cupellation advances, the melted button becomes rounder, its surface becomes streaky with large bright points of the fused oxide, which moves with increased rapidity, till at last the globule, being now freed from all the lead and other alloy, suddenly lightens; the last portions of litharge on the surface disappear with great rapidity; showing the melted metal bright with irridescent colors, which directly after becomes opaque, and suddenly appears brilliant, clean, and white, as if a curtain had been withdrawn from it. The operation being now finished, and the silver left pure, the cupel is allowed to cool gradually, till the globule of silver is fixed, after which it is taken out of the cupel while still hot, and when cold weighed with as much accuracy as at first. The difference between the globule and the silver at first put in, shows the quantity of alloy, the globule being now perfectly pure silver, if the operation has been well performed. The reason of cooling the globule or button gradually is, that pure silver, when congealing, assumes a crystalline texture, and if the outer surface is too suddenly fixed, it forcibly contracts on the still fluid part in the centre, causing it to spurt out in arborescent shoots, by which some minute portions are often thrown out of the cupel, and the assay spoiled.'

The assay of gold and silver is alike, it will be observed, throughout the process of cupellation. As lead is the medium required for the absorption of other metals, both the quality and quantity of that metal employed become important to ascertain. If it contains much silver, it will be easy to perceive a source of material error in the operations of the assayer. Lead revived from litharge contains only about half a grain in the pound weight, and is therefore preferred to lead immediately revived from the ore, which usually contains a larger quantity.

As to the proper quantity of lead, it is desirable at first to ascertain the comparative state of purity of the ingot to be assayed. In this country, such a judgment is generally formed from inspection of the color, hardness, tenacity, &c. of the metal, but formerly touch-needles were employed for this purpose. These, which are not entirely in disuse, consist of small bars of differently proportioned alloys, of known composition. If a streak is made with the ingot upon the surface of black flint, or basalt, a species of indurated slate, called by the ancients *βάσανος*, and still known by the name of basanite, or even upon a fragment of black pottery, by comparing the streaks with those made on the same stone from needles of known composition, the relative purity of the ingot may be inferred. 'Copper' says Dr. Aikin, 'the usual alloy of the fine metals, when taken singly, is found to require from ten to fourteen times its weight of lead for complete scorification on the cupel. Now, all admixtures of fine metal tend to protect the copper from the action of the litharge and the more obstinately, the greater the proportion of fine metal. So that copper, with three times its weight of silver (or 9 oz. fine), requires forty times as much lead as copper; with eleven parts of silver it requires seventy-two parts of lead, and the like in an increasing ratio. The following is the table of the proportions of lead required to different alloys of copper; of which a few points are founded on the above-mentioned experiments, and the rest filled up according to the estimated ratio of increase, being multiples of the assay integer 24 in arithmetical progression. In the three first columns is shown the absolute increase of the quantity of lead in alloys of decreasing fineness; in the three last columns will be seen the gradual diminution of the protecting power of fine metal against scorification, in proportion to the increase of alloy, shown by the decreasing quantity of lead required for the same weight of copper, under different mixtures.'

TABLE.

Silver		Copper		Lead	Ratio of increase		Copper		Silver		Lead	
23	with	1	requires	96	= 4 × 24	and hence	1	with	23	requires	96	
22	———	2	———	144	= 6 × 24	———	1	———	11	———	72	
20	———	4	———	192	= 8 × 24	———	1	———	5	———	48	
18	———	6	———	240	= 10 × 24	———	1	———	3	———	40	
16	———	8	———	288	= 12 × 24	———	1	———	2	———	36	
14	———	10	———	336	= 14 × 24	———	1	———	$1\frac{2}{3}$	———	33	
12	———	12	———	384	= 16 × 24	———	1	———	1	———	32	
10	———	14	———	432	= 18 × 24	———	1	———	$\frac{5}{7}$	———	30	+
8	———	16	———	480	= 20 × 24	———	1	———	$\frac{1}{2}$	———	30	
6	———	18	———	528	= 22 × 24	———	1	———	$\frac{1}{3}$	———	29	+
4	———	20	———	576	= 24 × 24	———	1	———	$\frac{1}{5}$	———	28	+
2	———	22	———	624	= 26 × 24	———	1	———	$\frac{1}{11}$	———	28	+

It should be remarked, however, that many assayers of good authority use proportions of lead considerably different from the above table; and the whole of the numbers here given may be considered as rather high, in regard to the quantity of lead. The assaying of gold, if that noble metal contained copper as an alloy, would be as simple and expeditious as that of silver; but all gold contains a portion of silver, which cannot be destroyed by cupellation: it may also contain platina; but this is not commonly found.

After it has passed the cupel, quartation and parting become necessary. The former consists in adding (generally) three parts of silver to the mass of supposed gold, and fusing them together. It is an object of importance to prevent the cornets from being broken, the result being less likely to be accurate when the gold is in fragments; and to prevent this, the quantity of silver used is no more than is absolutely necessary, it being found that the less the quantity of gold, compared to the silver, used in the assay, the more likely is the gold to be broken into pieces. 'Suppose, for example,' says Mr. Mushet, 'that a gold assay is made from the integer, or pound, weighing twelve grains Troy, an addition of from twenty-four to thirty-six grains of pure silver is made in addition to the small portion already supposed to exist in the mass. This becomes thoroughly incorporated with the gold in the process of cupellation. The globule, or button, as soon as it is taken from the furnace, is passed between a pair of polished steel rollers, and drawn out into a thin lamina, or plate, of the thickness of a sixpence, and returned into the furnace to be annealed. After being kept in a red heat for some time, it is taken out and suffered to cool. It is then wound up into a cornet. This is put into a glass matrass, of the shape of an inverted cone, and with about twice or thrice its weight of very pure nitric acid. M. Vauquelin recommends it to be 1·25 specific gravity.'

The hot acid being very carefully poured from the matrass, warm water is added to wash any remains of silver from the gold, and the addition repeated until the water comes off perfectly clear. The cornets of gold, which are of a dull brown color, are then put according to their numbers into small clay crucibles, into which they are allowed gently to fall by inverting the matrass, with a portion of water in it, which breaks their fall, and also collects any grains of gold that may be in the matrass. The water is then poured off, and they are put into the furnace, and annealed under a bright cherry heat. When cooled, the pieces of gold exhibit their beautiful characteristic lustre, and possess all the softness and flexibility of that metal. The weight of the original metallic mass before cupellation and in the subsequent stages, compared with the final weight now ascertained, indicates the degree of fineness of the ingot, or ore, of which it is a part. In estimating or expressing this fineness in regard to gold, the whole mass spoken of is supposed to weigh twenty-four carats of twelve grains each, either real, or merely proportional, like the assayer's weights; and the pure gold is called fine. Thus, if gold be said to be twenty-three carats fine, it is to be understood, that in a mass weighing twenty-four carats, the quantity of pure gold amounts to twenty-three carats.

The assay report of gold, says the official gentleman we have quoted above, is made according as it is better or worse than standard. The standard of our gold coin is twenty-two carats fine, and two carats alloy. If, by assay, an ingot of gold was found to contain twenty-one carats of fine gold, it would be reported worse one carat, the mass containing a carat of alloy more than the proportion of two carats to twenty-two carats fine. If the ingot weighed fifteen pounds Troy, there would be deducted from the gross weight one carat, or 240 grains Troy, reducing the standard of the mass to 14 lbs. 11 ozs. 10 dwts. If, on the contrary, the mass was found to contain twenty-three carats fine gold, it would be reported one carat better than standard; and this carat would be added to the gross weight of the ingot, which we have supposed to weigh fifteen pounds Troy, and would be called 15 lbs. 0 oz. 10 dwts. of standard gold. When the gold assay pound or integer is only twelve grains, the quarter assay grain weighs only $\frac{1}{30}$ part of a Troy grain. This will show how delicate the scales must be by which the assayer works in order to obtain accuracy. In the royal mint the scales of the assayers will be sensibly affected even with

the $\frac{1}{1000}$th part of a Troy grain. When the emperor of Russia lately visited the mint, he was particularly struck with the extreme delicacy of the assay scales of Mr. Bingley, the king's assay-master. That gentleman requested the favor of his imperial majesty to put one of the hairs of his head into the scale, which he did, and, to the great satisfaction of his majesty, it very sensibly affected the equilibrium of the beam.'

It is necessary to be careful that the silver used in this last process should contain no gold, otherwise a source of material error would arise in the operation; and, as silver generally contains a small portion of gold, the best assayers use that which is revived from a precipitation of the nitrate of silver. This nitrate of silver is precipitated by immersing in it plates of copper: it may also be recovered by a solution of common salt, which converts the silver into luna cornea, of which, when washed and well dried, 100 parts contain seventy-five of silver. The accuracy of the assay may also be proved by this process. The luna cornea, however, is more difficult to reduce to the metallic state.

Many dealers in bullion (the bank of England we believe uniformly) refuse to purchase any foreign gold bullion, until it has been remelted by refiners or melters on whose integrity they can rely.

Platina, on account of its great value, is not likely to be used in debasing silver; but it may be fraudulently added to gold. Like gold and silver, it resists the action of lead upon the cupel; but an expert assayer will recognise its presence by the very different appearance which it gives to the button of metal in fusion. This is less perfect; a much greater heat is required; and the color less bright; and, in a very small proportion, it gives to the gold a strong tendency to crystallisation. Nothing is required for its separation but to proceed exactly as in a gold assay; and, by reducing the lamina of metal very thin, to form the cornet, the platina, though alone insoluble in nitric acid, may, with the silver, be totally removed from the gold.

Some idea of the delicacy required through the whole of the foregoing operations may be formed from an authentic statement, that in our national mint an assay of twenty grains is relied on for giving the value of a mass of gold of fifteen pounds, or of silver of sixty pounds in weight.

The Annales de Chimie, vol. vi. p. 64, contain some very interesting details of recent attempts of the French government to establish an accurate assay of gold. The general result is as follows, nearly in the terms of the experimenters:—

Six principal circumstances appear to affect the operation of parting: namely, the quantity of acid used in parting, or in the first boiling; the concentration of this acid; the time employed in its application; the quantity of acid made use of in the reprise, or second operation; its concentration; and the time during which it is applied. From the experiments it has been shown, that each of these unfavorable circumstances might easily occasion a loss of from the half of a thirty-second part of a carat, to two thirty-second parts. The writers explain their technical language by observing, that, the whole mass consisting of twenty-four carats, this thirty second part denotes 1-768th part of the mass. It may easily be conceived, therefore, that if the whole six circumstances were to exist, and be productive of errors falling the same way, the loss would be very considerable.

It is indispensably necessary, therefore, that one uniform process should be followed in the assays of gold; and it is a matter of astonishment, that such an accurate process should not have been prescribed by government for assayers in an operation of such great commercial importance, instead of every one being left to follow his own judgment. The process recommended in the report before us is as follows:—

Twelve grains of the gold intended to be assayed must be mixed with thirty grains of fine silver, and cupelled with 108 grains of lead. The cupellation must be carefully attended to, and all the imperfect buttons rejected. When the cupellation is ended, the button must be reduced by lamination into a plate of one inch and a half, or rather more, in length, and four or five lines in breadth. This must be rolled up upon a quill, and placed in a matrass capable of holding about three ounces of liquid, when filled up to its narrow part. Two ounces and a half of very pure aqua-fortis, of the strength of twenty degrees of Baume's areometer, must then be poured upon it; and the matrass being placed upon hot ashes, or sand, the acid must be kept gently boiling for a quarter of an hour; the acid must then be cautiously decanted, and an additional quantity of one ounce and a half must be poured on the metal, and slightly boiled for twelve minutes. This being likewise carefully decanted, the small spiral piece of metal must be washed with filtered river water, or distilled water, by filling the matrass with this fluid. The vessel is then to be reversed, by applying the extremity of its neck against the bottom of a crucible of fine earth, the internal surface of which is very smooth. The annealing must then be made, after having separated the portion of water which had fallen into the crucible; and, lastly, the annealed gold must be weighed. For the certainty of this operation, two assays must be made in the same manner, together with a third assay upon gold of twenty-four carats, or upon gold the fineness of which is perfectly and generally known.

No conclusion must be drawn from this assay, unless the latter gold should prove to be of the fineness of twenty-four carats exactly, or of its known degree of fineness; for, if there be either loss or surplus, it may be inferred, that the other two assays, having undergone the same operation, must be subject to the same error. The operation being made according to this process, by several assayers, in circumstances of importance, such as those which relate to large fabrications, the fineness of the gold must not be depended on, nor considered as accurately known, unless all the assayers have obtained a uniform result without communication with each other. The authors observe, however, that this identity must be considered as existing to the accuracy of half of the thirty-second part of a carat. For notwithstanding every possible precaution or

uniformity, it very seldom happens that an absolute agreement is obtained between the different assays of one and the same ingot; because the ingot itself may differ in its fineness in different parts of its mass.

The assaying of silver does not differ from that of gold, excepting that the parting operation is not necessary. A certain small portion of the silver is absorbed by the cupel and the more when a larger quantity of lead is used, unless the quantity of lead be excessive; in which case most of it will be scorified before it begins to act upon the silver. Messrs. Hellot, Tillet, and Macquer, from their experiments made by order of the French government, have ascertained, that four parts of lead are requisite for silver of eleven pennyweights twelve grains fine, or containing this weight of pure silver, and twelve grains of alloy, in twelve pennyweights; six parts of lead for silver of eleven pennyweights; eight parts lead for silver of ten pennyweights; ten parts lead for silver of nine pennyweights: and so on in the same progression. The following is the assay table of M. D'Arcet:

Titles of the Silver.	Quantities of copper in the alloy.	Doses of lead necessary, the weight of silver being 1.	Relation between the lead and copper.
Silver at 1000	0	3-10ths.	
950	50	3	70 to 1
900	100	7	60—1
800	200	10	50—1
700	300	12	40—1
600	400	14	35—1
500	500	from 16 to 17	32—1
400	600	16—17	26·66—1
300	700	16—17	22·857—1
200	800	16—17	20—1
100	900	16—17	17·77—1
Pure copper,	1000	16—17	16—1

This table supposes, that the title of the silver to be assayed is known; but when it is not, it may be determined approximately, by exposing in the cupel 0·1 part of this silver with 1 of lead. French gold and silver coin contains 1-10th of copper united to the precious metal. British silver coin consists of 12½ silver and 1 copper; our gold coin contains 11-12ths of gold. The remainder is either copper, or a mixture of silver and copper.

In our plate entitled ASSAYING we give the assay furnace and its instruments, as used at the Royal Mint, and Goldsmith's Hall, London.

Fig. 1. AAAA is a front elevation of the assay furnace; *a a* one of two iron rollers on which the furnace rests; *b* the ash-pit; *c c* the ash-pit dampers, moving in a horizontal direction towards each other, for regulating the draught of the furnace; *d* the door, or opening by which the cupels are introduced into the muffle; *e* a movable funnel or chimney, by which the draught of the furnace is increased.

BBBB, Fig. 2, is a perpendicular section of fig. 1; *a a* ends of the rollers; *b* the ash-pit; *c* one of the ash-pit dampers; *d* the grate; *e* the plate upon which the muffle rests, and which is covered with loam nearly one inch thick; *f* a section of the mufflle representing the situation of the cupels; *g* the mouth-plate, and upon it are laid pieces of charcoal, which during the process are ignited, and heat the air that is to pass over the surface of the cupels; *h* the interior of the furnace, exhibiting the fuel.

The total height of the furnace is two feet six inches and a half; from the bottom to the grate six inches; the grate, muffle, plate, and bed of loam with which it is covered three inches; from the upper surface of the grate to the commencement of the funnel, *e*, is six inches. The square of the furnace which receives the muffle and fuel is eleven inches and three-quarters by fifteen inches. The external sides of the furnace are made of plates of wrought iron, and are lined with a two-inch fire brick.

Fig. 3 is the muffle, a sort of small oven, made of crucible clay, and open at one end. On the floor of the muffle the cupels are ranged in order, so that by a corresponding board as a register, the position of each may be preserved with reference to their respective contents. At the sides of the muffle are three or four slits to allow of the circulation of the air, which is essential to the process. It is usual to spread over the floor of the muffle a thin layer of sand, or powdered chalk, to prevent the fused oxide of lead which may penetrate the cupel, from cementing it to the bottom of the muffle.

Fig. 4 is the muffle plate on which it rests in the furnace.

Fig. 5 is the door seen at *d* in fig. 1, with *n* its sliding mouth-plate.

Fig. 6 represents the mode of closing the mouth of the furnace with cylinders of charcoal, which being ignited, heat the air, before it arrives at the surface of the metal in the cupels.

Fig. 7 two cupels; they are made of bones calcined and reduced to a moderately fine powder, which is mixed up with water so as to form a paste. The shape is produced by ramming this paste into truncated conical moulds, a cavity is then formed at the upper surface of each by means of a round ended pestle or rammer. The cupel is disengaged from the mould, and suffered to become thoroughly dry in the open air before it can be made use of for an assay. The core of ox horns is considered the best substance for producing the phosphate of lime for cupels. Those commonly employed in the mint are one inch in diameter by seven-eighths in depth.

Fig. 8 the teaser for cleaning the grate.

Fig. 9 a larger teaser, which is introduced at the top of the furnace, for keeping a complete supply of charcoal around the muffle.

Fig. 10 the tongs used for charging the assays into the cupels.

Fig. 11 represents a board of wood used as a register, and is divided into forty-five equal compartments, upon which the assays are placed previous to their being introduced into the furnace. When the operation is performed, the cupels are placed in the furnace in situations corresponding to these assays on the board; by these means all confusion is avoided, and with-

out this regularity, it would be impossible to preserve the accuracy which the delicate operation of the assayer requires.

ASSAY-MASTER, an officer, under certain corporations, entrusted with the care of making true touch, or assay, of gold and silver; and giving a just report of the goodness or badness thereof. Such is the assay-master of the mint in the Tower, called also assayer of the king.

The assay-master of the goldsmith's company is an assistant-warden, called also a touch-warden, appointed to survey, assay, and mark all the silver-work, &c. committed to him. There are also assay-masters, appointed by statute, at York, Exeter, Bristol, Chester, Norwich, Newcastle, and Birmingham, for assaying wrought plate. The assay-master is to retain eight grains of every pound Troy of silver brought to him; four whereof are to be put in the pix, or box of deal, to be re-assayed the next year; and the other four to be allowed him for his waste and spillings. 12 and 13 Will. III. c. 4. 1 Ann. c. 9.

Note. The number of pennyweights set down in the assay-master's report, is to be accounted as per pound, or so much in every pound of twelve ounces Troy. For every twenty pennyweights, or ounce Troy, the silver is found by the assay to be worse than standard, or sterling, sixpence is to be deducted; because every ounce will cost so much to reduce it to standard goodness, or to change it for sterling. In gold, for every carat it is set down to be worse than standard, you are to account that in the ounce Troy it is worse by so many times 3*s.* 8*d.* And for every grain it is set down worse, you must account it worse by so many times 11*d.* in the ounce Troy. And for every half grain, 5½*d.*; for so much it will cost to make it of standard goodness, &c.

ASSAY-BALANCE, a balance used in the operation of assaying. See BALANCE.

ASSAY OF WEIGHTS AND MEASURES, often signifies the trial or examination of common weights and measures by the clerk of a market.

ASSECU'RE, ASSECU'RANCE, ASSECURA'TION. } Barbarous Lat. *assecurare*, Lat. *securus*, to give assurance.

Can never mischief end as it begun;
But being once out, must farther out of force?
Think you that any means under the sun
Can *assecure* so indirect a course?
Daniel. Civil War. bk. iii. p. 473.

But how far then reaches this *assecuration?* So far as to exclude all fears, all doubting and hesitation? Neither of these. *Bishop Hall's Sermons.*

ASSECUTION. Lat. *assequor, assecutus*, from *ad* and *sequor*, the act of following up, obtaining.

By the canon law, a person after he has been in full possession of a second benefice, cannot return to his first, because it is immediately void by his *assecution* of a second. *Ayliffe's Parergon.*

ASSELYN (John), a famous Dutch painter, the disciple of Isaiah Vandevelde. He distinguished himself in historical pieces, battles, landscapes, with ruins and animals, particularly horses. He travelled into France and Italy; and was much pleased with the manner of Bamboccio, which he always followed, except in the painting landscapes, in which Claude Lorraine was his model. Twenty-four of his landscapes have been engraved by Perelle, and sold at high prices. He died at Amsterdam in 1660.

ASSEMANI, I. S. and S. E. two learned librarians of the Vatican, in the seventeenth and eighteenth centuries. Joseph Simon was born at Rome 1687, and died 1768. He wrote Bibliotheca Orientalis Clementino Vaticana, Romæ, 1719-28, 4 vols. folio, affording ample proof of his learning in the numerous notices it contains of Syriac, Arabic, and Persian manuscripts, with lives of their authors. S. Ephræm, Syri, Opera omnia, quæ extant, Græce, Syriace, et Latine, Romæ, 1732-34, 6 vols. folio; Italicæ Historiæ Scriptores ex Bibl. Vat., Romæ, 1751-53, 4 vols. 4to; Kalendaria Ecclesiæ Universæ, &c. Romæ, 1755-57, 6 vols. 4to. Assemani, S. E. nephew of the foregoing, wrote Bibliothecæ Mediceo Laurentinæ et Palatinæ Codd. MSS. Orientalium Catalogus, Florentiæ, 1742, 2 vols. folio; Acta Sanctorum Martyrum Oriental et Occidental, Romæ, 1748, 2 vols. folio.

ASSEM'BLANCE. Fr. *sembler*, a likeness. See SEMBLANCE.

FALST. Will you tell me, Master Shallow, how to chuse a man? Care I for the limbe, the thewes, the stature, bulke, and bigge *assemblance* of a man? Give me the spirit, Master Shallow.
Shakspeare. Henry IV. part ii.

ASSEMBLE, *v.* & *n.* ASSEM'BLAGE, ASSEM'BLANCE, ASSEM'BLER, ASSEM'BLING, ASSEM'BLY. } Fr. *assembler*, from the Latin *ad*, to, and *simul*, together. To bring together, or in one place; to collect; to convene.

A rout of people there *assembled* were,
Of every sort and nation under sky,
Which, with great uproar, pressed to draw near
To the upper part, where was advanced high
A stately seat of sovereign majesty. *Spenser.*

Mahomet made the people believe that he would call a hill to him; and from the top of it offer up his prayers for the observers of his law. The people *assembled*; Mahomet called the hill to come to him, again and again; and, when the hill stood still, he was never a whit abashed, but said; 'If the hill will not come to Mahomet, Mahomet will go to the hill.'
Lord Bacon's Essays.

These men *assembled*, and found Daniel praying.
Daniel.

And he shall set up an ensign for the nations, and shall *assemble* the outcasts of Israel, and gather together the dispersed of Judah. *Isaiah* xi. 12.

He wonders for what end you have *assembled*
Such troops of citizens to come to him.
Shakspeare.

Assemble all in choirs, and with their notes
Salute and welcome up the rising sun. *Otway.*

O Hartford (fitted, or to shine in courts
With unaffected grace, or walk the plains,
With innocence and meditation join'd
In soft *assemblage*) listen to my song! *Thomson.*

The ASSEMBLY OF DIVINES at Westminster, was an association of ministers and others, summoned by ordinance of parliament, in the year 1643, to meet at Westminster, 'for settling the government and liturgy of the church of England, and for vindicating and clearing the said church from false aspersions and interpretations.'

It also met expressly according to the words of the covenant, 'for the extirpation of prelacie, that is church-government by arch-bishops, bishops, their chancellors, and commissaries, deans and chapters, archdeacons and all other ecclesiastical officers.' This assembly consisted of 121 divines and thirty laymen, 'celebrated' in their party,' says Mr. Hume, 'for piety and learning.' The leading parties were the Presbyterians, Erastians, and Independents. The works of the assembly, besides some letters to foreign churches, and occasional admonitions were, 1. Their humble Advice to Parliament, for Ordination of Ministers, and settling the Presbyterian Government. 2. A Directory for Public Worship. 3. A Confession of Faith. 4. A larger and a shorter Catechism. 5. A Review of some of the Thirty-nine Articles. Both the larger and shorter Assembly's catechism, are largely in use at the present time among the English Calvinistic dissenters.

Assemblies of the clergy are otherwise called convocations, synods, councils. The annual meeting of the church of Scotland is called the General Assembly; in which his Majesty is represented by his commissioner, generally a Scottish nobleman, but who has no voice in the deliberations: his duty being confined to the calling and dissolution of the meeting, which he does in the name of his Majesty, whilst the Moderator does the same in the name of the Lord Jesus Christ. This assembly possesses the highest authority in the church of Scotland; a presbytery, composed of fewer than twelve parishes, sends two ministers and one ruling elder to the assembly; if it contains between twelve and eighteen ministers, it sends three of these, and one ruling elder; if it contains between eighteen and twenty-four ministers, it sends four ministers and two ruling elders; and of twenty-four ministers, it sends five with two ruling elders. Every royal borough deputes one ruling elder, and Edinburgh two; their election must be attested by the kirk-session of their respective boroughs. Every university sends one commissioner from its own body. The commissioners are chosen annually six weeks before the meeting of the assembly; and the ruling elders are often men of the first eminence for rank and talents.

Assemblies of the Roman people were called comitia.

Assemblies of the States. Under the Gothic governments, the supreme legislative power was lodged in an assembly of the states of the kingdom held annually for the like purposes as our parliaments. There were some feeble remains of them in France and Poland before the late revolutions and counter-revolutions.

Assembly, in the military art, the second beating of a drum before a march; at which the soldiers strike their tents, roll them up, and stand to arms. See Drum.

ASSENS, a bailiwic and town of Denmark, on the west coast of the island of Funen, which carries on a considerable trade in corn. It is also called Asnes, which signifies the holy promontory. A battle was fought in it, in 1536, wherein Christian III. obtained a decisive victory over Christian II. Here is a ferry across the little Belt to Holstein. Long. 9° 54′ E., lat. 55° 20′ N.

ASSENT′, *v.* & *n.*
Assenta′tion,
Assenta′tor,
Assent′er,
Assent′ment.

Lat. *assentior*, from *ad*, and *sentio*, to think to, to be of the same opinion. To agree to what is proposed, to bring one's mind to a thing, to comply. Assentation is synonymous with flattery; obsequiousness.

And the Jews also *assented*, saying that these things were so. *Acts* xxiv. 9.

Their arguments are but precarious, and subsist upon the charity of our *assentments*. *Brown's Vulgar Errors.*

To urge any thing upon the church; requiring thereunto that religious *assent* of Christian belief, wherewith the words of the holy prophets are received, and not to show it in scripture; this did the Fathers evermore think unlawful, impious, and execrable. *Hooker.*

The evidence of God's own testimony, added unto the natural *assent* of reason concerning the certainty of them, doth not a little comfort and confirm the same. *Id.*

Without the king's *assent* or knowledge,
You wrought to be a legate. *Shakspeare.*

Faith is the *assent* to any proposition, not thus made out by the deduction of reason, but upon the credit of the proposer. *Locke.*

All the arguments on both sides must be laid in balance; and, upon the whole, the understanding determine its *assent*: *Id.*

Man is the world's high-priest, he doth present
The sacrifice for all, while they below,
Unto the service mutter an *assent*,
Such as springs use, that fall, and winds that blow. *Herbert.*

One would think that hell should have little need of the fawning *assentation* of others, when men carry so dangerous parasites in their own bosoms; but sure, both together must needs help to people that region of darkness. *Bishop Hall's Soliloquies.*

He ceased; th' assembled warriors all *assent*,
All but Atrides. *Cumberland.*

Precept gains only the cold approbation of reason, and compels an *assent* which judgment frequently yields with reluctance, even when delay is impossible. *Hawkesworth.*

The Royal Assent is the approbation given by the king in parliament, to a bill which has passed both houses, after which it becomes a law.

The royal assent may be given in two ways. 1 In person; when the king comes to the house of peers, in his crown and royal robes, and sending for the commons to the bar, the titles of all the bills that have passed both houses are read; and the king's answer is declared by the clerk of the parliament in Norman-French. If the king consents to a public bill, the clerk usually declares, 'le roy le veut; the king wills it so to be;' if to a private bill, 'soit fait comme il est desirè; be it as it is desired.' If the king refuses his assent, it is in the gentle language of 'le roy s'avisera; the king will advise upon it.' When a money-bill, or bill of supply, is passed, it is carried up and presented to the king by the speaker of the house of commons; and the royal assent is thus expressed 'le roy remercie ses loyal sujets, accepte leur benevolence, et aussi le veut;

the king thanks his loyal subjects, accepts their benevolence, and wills it so to be.'

In case of an act of grace, which originally proceeds from the crown, and has the royal assent in the first stage of it, the clerk of the parliament thus pronounces the gratitude of the subject; 'les prelats, seigneurs, et commons, en ce present parlement assemblées, au nom de touts vous autres sujets, remercient tres humblement votre majeste, et prient a Dieu vous donner en sante bone vie et longue; the prelates, lords, and commons, in this present parliament assembled, in the name of all your other subjects, most humbly thank your majesty, and pray to God to grant you health and wealth long to live.'

2. By the statute 33 Hen. VIII. c. 21., the king may give his assent, by letters patent, under his great seal, signed with his hand, and notified in his absence to both houses, assembled together in the high house. And when the bill has received the royal assent in either of these ways it is then, and not before, a statute or act of parliament: a copy of which is usually printed at the king's press, for the information of the whole land. See Blackst. Com. book i. chap. 2.

ASSER, or Asce, a Jewish rabbi of the fifth century, who, with other learned rabbins, compiled the collection of Hebrew traditions called the Babylonian Talmud. This was printed at Leyden, 1630, in 4to.; but the most complete edition is one published in 1744, at Amsterdam, twelve volumes folio, with an ample commentary. Asser died in 427, aged seventy-four.

Asser (John), or Asserius Menevensis, (i. e. Asser of St. David's), bishop of Sherborne in the reign of Alfred the Great. He was born in Pembrokeshire, South Wales; and educated in the monastery of St. David's. By his assiduous application he soon acquired universal fame as a person of profound learning and great abilities. Alfred the munificent patron of genius, about the year 880, sent for him to his court, then held at Dean in Wiltshire. He was so charmed with Asser, that he made him his preceptor and companion; appointed him abbot of two or three different monasteries; and at last promoted him to the see of Sherborne, where he died in 910. He is said to have been principally instrumental in persuading the king to restore the university of Oxford to its pristine dignity; and wrote De Vitâ et Rebus Gestis Alfredi, &c. Lond. 1574, published by archbishop Parker, in the old Saxon character, at the end of Walsinghami Hist.—Francf. 1602, fol. Oxf. 1722, 8vo. Many other works are ascribed to this author by Gale, Bale, &c. but on very doubtful authority.

ASSERIA, Assesia, or Asisia, an ancient town of Liburnia, now in ruins. Pliny, having specified the Liburnian cities that were obliged to attend the congress of Scardonia, adds to the catalogue the free Asserians, immunesque Asseriates; a people who created their own magistrates, and were governed by their own municipal laws.

ASSERIDA, in botany, a name given by the people of Guinea to a kind of shrub, the leaves of which being chewed, are a cure for the colic.

ASSERT', Asserta'cion, Asser'tion, Asser'tive, Asser'tively, Asser'tor, Asser'tory. *Assero, assertum*, to knit to, to sew to. To abide by, to bear the consequence of an opinion, to hold, to maintain, to affirm.

That tongue
Inspir'd with contradiction, durst oppose
A third part of the gods, in synod met,
Their deities to *assert*. *Milton.*

Among th' *asserters* of free reason's claim,
Our nation's not the least, in worth or fame,
The world to Bacon does not only owe
It's present knowledge, and its future too.
Dryden's Epistles.

Faithful *assertor* of thy country's cause,
Britain with tears shall bathe thy glorious wound.
Prior.

It is an usual piece of art to undermine the authority of fundamental truths, by pretending to shew how weak the proofs are which their *assertors* employ in defence of them. *Atterbury.*

He was not so fond of the principles he undertook to illustrate, as to boast their certainty; proposing them, not in a confident and *assertive* form, but as probabilities and hypotheses. *Glanville.*

The Epicureans contented themselves with the denial of a Providence, *asserting* at the same time the existence of gods in general, because they would not shock the common belief of mankind. *Addison.*

We, as it were, lean forward with surprise and trembling, to behold the human soul collecting its strength, and *asserting* a right to superior fates. *Usher.*

When the great soul buoys up to this high point,
Leaving gross nature's sediments below,
Then, and then only, Adam's offspring quits
The sage and hero of the fields and woods,
Asserts his rank and rises into man. *Young.*

It is an erect countenance; it is a firm adherence to principle; it is a power of resisting false shame and frivolous fear, that *assert* our good faith and honour, and assure us of the confidence of mankind. *Burke.*

Sophocles also, in a fragment of one of his tragedies, *asserts* the unity of the supreme being. *Cumberland.*

But, lo! from high Hymettus to the plain,
The queen of night *asserts* her silent reign.
Lord Byron's Corsair.

ASSESS', *v.* & *n.* Asses'sionary, Asses'sment, Asses'sor. Ital. *assessare*, to set to, impose a tax. Legally done by a sitting or council, and agreement of those authorised to impose it. Assessor is a legal adviser to a magistrate, sitting by him on the bench.

To his Son,
Th' *assessor* of his throne, he thus began. *Milton.*

Twice stronger than his sire, who sat above,
Assessor to the throne of thund'ring Jove. *Dryden.*

Minos, the strict inquisitor, appears;
And lives and crimes, with his *assessors*, hears:
Round, in his urn, the blended balls he rolls;
Absolves the just, and dooms the guilty souls. *Id.*

What greater immunity and happiness can there be to a people, than to be liable to no laws, but what they make themselves? To be subject to no contribution, *assessment*, or any pecuniary levy whatsoever, but what they vote, and voluntarily yield unto themselves. *Howell.*

One of the answers of the jury, upon their oaths, at the *assessionary* court, I have inserted.

Carew's Survey of Cornwall.

Pausanias sat the judge;
Callicrates and Aemnestus wise,
His two *assessors*. *Glover's Athenaid.*

ASSETS, in law, are either real or personal. Where a man hath lands in fee simple, and dies seized thereof, the lands which come to his heir are assets real; and where he dies possessed of any personal estate, the goods which come to the executors are assets personal. Assets are also divided into assets per descent, and assets inter maines.

1. ASSETS BY DESCENT are where a person is bound in an obligation, and dies seized of lands which descend to the heir, the land shall be assets, and the heir shall be charged as far as the land to him descended will extend.

2. ASSETS INTER MAINES are when a man indebted makes executors, and leaves them sufficient to pay his debts and legacies; or where some commodity or profit ariseth to them in right of the testator, which are called assets in their hands. This term is also applied commercially to any available property for the payment of a man's debts.

ASSEV'ER, ASSEVER'ATION. } Lat. *assevero; ad*, and *severus*. To say or affirm severely or solemnly; to assure; to maintain seriously.

GUISE. You must, you will, and smile upon my murder.
MARMUNTIER. Therefore, if you are conscious of a breach,
Confess it to me: lead me to the king,
He has promis'd me to conquer his revenge,
And place you next him; therefore, if you're right,
Make me not fear it by *asseverations*,
But speak your heart, and O resolve me truly.

Dryden. Duke of Guise.

'I will come and some of you shall see me coming.' Can it be supposed that in such an *asseveration*, the word to 'come' may bear two different senses. *Horsley's Sermons.*

ASSIDEANS, or CHASIDÆANS; from the Heb. חסידים, chasidim, merciful, pious; those Jews who resorted to Mattathias to fight for the law of God and the liberties of their country. They were men of great valor and zeal, having voluntarily devoted themselves to a more strict observation of the law than other men. For after the return of the Jews from the Babylonish captivity, there were two sorts of men in their church; those who contented themselves with that obedience only which was prescribed by the law of Moses, and who were called Zadikim, i. e. the righteous; and those who, over and above the law, superadded the constitutions and traditions of the elders, and other rigorous observances: these latter were called Chasidim, i. e. the pious. From the former sprung the Samaritans, Sadducees, and Caraites; from the latter, the Pharisees and the Essenes.

ASSIDENT SIGNS, in medicine, are symptoms which usually attend a disease but not always; hence differing from pathognomic signs, which are inseparable from the disease: e. g. in the pleurisy, a pungent pain in the side; in an acute fever, difficulty of breathing, &c collectively taken, are pathognomic signs; but that the pain extends to the hypochondrium or clavicle, or that the patient lies with more ease on one side than on the other, are assident signs.

ASSID'UATE, ASSID'UITY, ASSID'UOUS, ASSID'UOUSLY. } Lat. *assideo*, to sit down at any thing constantly or daily. Constant in application, unwearied, diligent, sedulous.

And if by pray'r
Incessant I could hope to change the will
Of him who all things can, I would not cease
To weary him with my *assiduous* cries. *Milton.*

The most *assiduous* tale-bearers, and bitterest revilers, are often half-witted people.

Government of the Tongue.

In summer, you see the hen giving herself greater freedoms, and quitting her care for above two hours together; but in winter, when the rigour of the season would chill the principles of life, and destroy the young one, she grows more *assiduous* in her attendance, and stays away but half the time.

Addison.

Each still renews her little labour,
Nor justles her *assiduous* neighbour. *Prior.*

We observe the address and *assiduity* they will use to corrupt us. *Rogers.*

The habitable earth may have been perpetually the drier, seeing it is *assiduously* drained and exhausted by the seas. *Bentley.*

A scholar is industrious, who doth *assiduously* bend his mind to study for getting knowledge.

Barrow's Sermons.

Often as she mounts
Or quits the car, his arm her weight sustains
With trembling pleasure. His *assiduous* hand
From purest fountains wafts the living flood.

Glover. Leonidas, book viii. p. 57.

ASSIDUI, in Roman antiquity, volunteers who served in the army at their own expense.

ASSIDUUS, or ADSIDUUS, from *as*, money, among the Romans, denoted a rich or wealthy person. Hence we meet with assiduous sureties, assidui fide-jussores. When Servius Tullius divided the Roman people into five classes, according as they were assessed, the richer sort who contributed *asses* were denominated assidui; and as these were the chief people of business who attended all the public concerns, those who were diligent in attendances came to be denominated assidui.

ASSIEGE'. Fr. *assieger*, to sit down before. To sit down before a town, to besiege.

Swiche wondring was ther on this hors of brass,
That sin the gret *assege* of Troye was,
Ther as men wondred on an hors also,
Ne was ther swiche a wondring, as was tho.

Chaucer. The Squier's Tale, vol. i. p. 431.

On th' other side th' *assieged* castles ward
Their stedfast arms did mightily maintain.

Spenser.

I leave what glory virtue did attain,
At th'ever memorable Agincourt.
I leave to tell, what wit, what pow'r did gain
The *assieg'd* Roan, Caen, Dreux; or in what sort.

Daniel. Civil War, book v.

ASSIENTO, Span. a contract. The first of this kind was made by the French Guinea Company; and, by the treaty of Utrecht, transferred to the English, who were to furnish 4800 negroes to Spanish America annually.

ASSIGN', *v.* & *n.* / ASSIGN'ABLE, / ASSIGNA'TION, / ASSIGNEE', / ASSIGN'ER, / ASSIGN'MENT. — Lat. *assigno; ad*, and *signo*, to mark or sign. To mark off, to appoint, to set apart, to appropriate to a particular use, to allot, to bring forward as a cause or reason.

At last, as forced by false Ulysses crye,
Of purpose he brake fourth, *assigning* me
To the altar. *Surrey.*

He *assigned* Uriah unto a place where he knew that valiant men were. 2 *Sam.* xi. 16.

The two armies were *assigned* to the leading of two generals, both of them rather courtiers assured to the state, than martial men. *Bacon.*

The only thing which maketh any place publick, is the publick *assignment* thereof unto such duties. *Hooker.*

Thus most invectively he (Jaques) pierceth through
The body of the country, city, court,
Yea, and of this our life, swearing that we
Are mere usurpers, tyrants, and what's worse
To fright the animals, and to kill them up
In their *assigned* and native dwelling-place.
Shakspeare. As You Like It.

The cause of love can never be *assigned*,
'Tis in no face, but in the lover's mind.
Dryden. Tyrannic Love.

Both joining,
As join'd in injuries, one enmity
Against a foe by doom express *assign'd* us,
That cruel serpent. *Milton.*

This institution, which *assigns* it to a person whom we have no rule to know, is just as good as an *assignment* to nobody at all. *Locke.*

The lovers expected the return of this stated hour with as much impatience as if it had been a real *assignation*. *Spectator.*

True quality is neglected, virtue is oppressed, and vice triumphant. The last day will *assign* to every one a station suitable to the dignity of his character. *Addison.*

The gospel is at once the *assigner* of our tasks, and the magazine of our strength. *Decay of Piety.*

ASSIGN, OR ASSIGNEE, in common law, a person to whom a thing is assigned or made over. The word assign is said to have been introduced in favor of natural children; who, because they cannot pass by the name of heirs, are included under that of assigns. For Assignee, in brankruptcy, see BANKRUPTCY.

ASSIGNABLE MAGNITUDE, in geometry, any finite magnitude.

ASSIGNABLE RATIO, the ratio of finite quantities.

ASSIGNATS, a species of paper currency, issued by the government of France, for sums of different values, to the amount of many thousand millions of livres, to support the credit of the republic during the course of the revolution.

ASSIGNMENT, may be more accurately defined the act of transferring the interest or property a man has in any thing; or of appointing or setting over a right to another.

ASSIGNMENT OF A DOWRY, is the setting out of a woman's portion by the heir.

ASSIM'ILATE, / ASSIM'ILATENESS, / ASSIMILA'TION, / ASSIM'ILATIVE, / ASSIM'ILABLE. — Lat. *assimilo, assimilatum;* from *ad*, and *similis*, to bring to the like, to make like, to liken, to resemble, to convert to its own substance by digestion, and the process carried on in animal or vegetable bodies.

The spirits of many will find but naked habitations; meeting no *assimilables* wherein to re-act their natures. *Brown's Vulgar Errours.*

How little must the ordinary occupations of men seem to one who is engaged in so noble a pursuit as the *assimilation* of himself to the Deity. *Berkeley.*

Fast falls a fleecy show'r: the downy flakes
Descending, and with never ceasing lapse
Softly alighting upon all below,
Assimilate all objects. *Cowper's Poems.*

A ruin is a sacred thing. Rooted for ages in the soil, *assimilated* to it, and become as it were a part of it, we consider it a work of nature, rather than of art. *Gilpin's Tour to the Lakes.*

ASSIMILATION, in physics, is that motion by which bodies convert other bodies related to them, or at least such as are prepared to be converted, into their own substance and nature. Thus flame multiplies itself upon oily bodies, and generates new flame; air upon water, and produces new air; and all the parts, as wel. similar as organical, in vegetables and animals, first attract with some election or choice, nearly the same, common or not very different juices for aliment, and afterwards assimilate or convert them to their own nature.

ASSINIBONS, a native tribe of North Americans, whose name has been given to the western branch of the Great Red River. This stream divides itself into two branches, about thirty miles from its estuary in lake Winnipeg, the eastern branch bearing the name of the Red River from its source, the western, which rises in N. lat. 51° 15′, and W. long. 103° 20′, that of Assinibons. Extensive plains, covered with a short rank grass, and crowded with buffaloes and elks, extend between these streams, but timber even for firewood is scarce. The soil is gravelly, and beds of lime and stone form the rapids of these rivers; which are both navigable by canoes up to their source.

ASSINT, a parish of Scotland in the county of Sutherland, about fifteen miles in breadth, and twenty-five in length.

ASSIRATUM, in antiquity, a bloody draught, wherewith treaties were ratified. It was made of wine and blood, called by the ancient Romans assir.

ASSIS, in physiology, opium, or a powder made of hemp-seed, which being formed into boluses about the bigness of chestnuts, is swallowed by the Egyptians, who hereby become intoxicated and ecstatic. It is called by the Turks asserac.

ASSISA CADERE, in law; from assideo, to be nonsuited; when the complainant, from defect of legal evidence can proceed no further. Assisa cadit in juratum, is where a thing in controversy is so doubtful that it must necessarily be tried by a jury. Assisa continuanda, a writ directed to justices of assize for the continuation of a cause when certain records alleged cannot be produced in time by the party that has occasion to use them. Assisa proroganda, a writ for the stay of proceedings by reason of the parties being employed in the king's business. Assiza panis et cerevisiæ, assize of bread and beer, a statute for regulating their weight and quantity. Assisa Nocumenti, see NUISANCE. Assisa capi in modum assisæ, when the defendant pleads directly to the assize.—Assisa judicum, a judg-

ment of the court given either against the plaintiff or the defendant.

ASSISI, a small town in the papal dominions, in the duchy of Spoleto: the see of a bishop. St. Francis, the celebrated founder of the Franciscan order, was born here; and lies buried in the Sacro Convento. Near the foot of the hill on which the town stands is a rustic chapel, dedicated to the virgin and the angels, in which St. Francis is supposed to have received his first call to devotion. Over this a spacious church has been erected; and, on the second of August, multitudes of pilgrims flock to it from the adjoining provinces. When Mr. Eustace passed it in 1802, one of the fathers informed him, that more than 10,000 persons had attended the last anniversary, and that ten had been suffocated or trampled to death, in pressing forward to touch the altar. Here are the ruins of a temple of Minerva, built about the time of Augustus. The portico consisted of six fluted Corinthian columns, each having a distinct pedestal. It is now used as the portico of the church of Santa Maria di Minerva. In the neighbourhood of Assisi are other vestiges of Roman magnificence; ruins of baths, temples, and an aqueduct. The bishopric was dissolved by the French in 1810. Twenty miles N.N.W. of Spoleto. Long. 12° 30′ E., lat. 43′ 3° N.

ASSISII, in ecclesiastical writers, persons beneficed in a cathedral church, not in a rank below that of canons; thus called, either because they were allowed an assisia or pension, or from assiduus, diligent.

ASSIST′, ASSIST′ANCE, ASSIST′ANT, ASSIST′LESS. } *Assisto*; from *ad*, and *sisto*, to stop or stay. To place one'self by another so as to give him our strength; to stand by, not in the sense of to look on, but to give support—to help.

The council of Trent commends recourse, not only to the prayers of the saints, but to their aid and *assistance*: what doth this aid and *assistance* signify? *Stillingfleet.*

You have abundant *assistances* for this knowledge, in excellent books. *Wake's Prep. for Death.*

One bull, with curl'd black head beyond the rest,
And dew-laps hanging from his brawny chest,
With nodding front awhile did daring stand,
And with his jetty hoof spurn'd back the sand:
Then, leaping forth, he bellow'd out aloud:
Th' amazed *assistants* back each other crowd,
While monarch-like he rang'd the listed field;
Some toss'd, some gor'd, some trampling down, he kill'd. *Dryden. Conquest of Granada*, part i.

Let us entreat this necessary *assistance*, that by his grace he would lead us. *Rogers.*

Loose at each joint; each nerve with horror shakes,
Stupid he stares, and all *assistless* stands.
Such is the force of more than mortal hands.
Pope. Homer's Iliad, book xvi.

God *assists* us in the virtuous conflict, and will crown the conqueror with eternal rewards. *Blair.*

While my thoughts were thus employed, I was sent by Metophis towards the mountains of the desert Oasis, that I might *assist* his slaves in looking after his flocks, which were almost without number. *Hawkesworth's Telemachus.*

Eternal God,
Guide thou my footsteps in the way of truth,
And oh! *assist* me so to live on earth,
That I may die in peace, and claim a place
In thy high dwelling. *Kirke White's Poems.*

ASSISTANTS, in various trading or public companies, members who have the whole power of managing the company's affairs; and commonly called the court of assistants.

ASSISUS, in ancient law writers, a thing farmed out for a certain rent, in money or provisions.

ASSITHMENT; from ad, to, Lat. and sithe, Sax. instead of; a weregild, or compensation by a pecuniary mulct, quod vitâ supplicii ad expiandum delictum solvitur.

ASSIZE′, *v.* & *n.* Fr. *assis*, part. past, from the verb *asseoir*, to sit. To sit judicially, or under the sanction or appointment of the law.

There nas not a point truely
That it nas in his right *assise*.
Chaucer. The Romaunt of the Rose, ch. i.

When in mid air the golden trump shall sound,
To raise the nations under ground;
When in the valley of Jehosaphat
The judging God shall close the book of fate;
And there the last *assizes* keep,
For those who wake, and those who sleep.
Dryden. Ode to the Memory of Mrs. A. Killigrew.

ASSIZE, in old English law books, is defined to be an assembly of knights, and other substantial men, together with a justice, in a certain place, and at a certain time; but the word, in its present acceptation, implies a court, place, or time, when and where the writs and processes, whether civil or criminal, are decided by judge and jury. All the counties of England were, very anciently, divided into six circuits, and two judges assigned by the king's commission, to hold their assizes twice a-year in every county, except London and Middlesex. They were afterwards directed by magna charta, c. 12. to be sent into every county once a-year to take or try certain actions then called recognitions or assizes; the most difficult of which they are directed to adjourn into the court of common pleas to be there determined. But the present justices of assize and nisi prius are more immediately derived from the statute Westm. 2. 13 Edw. I. c. 30. explained by several other acts, particularly the statute 14 Edw. III. c. 16. and must be two of the king's justices of the one bench or the other, or the chief baron of the exchequer, or the king's serjeants sworn. They usually make their circuits in the respective vacations after Hilary and Trinity terms; assizes being allowed to be taken in the holy time of Lent by consent of the bishops at the king's request, as expressed in statute Westm. 1. 3 Edw. I. c. 51. The judges upon the circuits now sit by virtue of five several authorities. 1. The commission of the peace in every county of the circuits; and all justices of the peace of the county are bound to be present at the assizes; and sheriffs are also to give their attendance on the judges, or they shall be fined. 2. A commission of oyer and terminer, directed to them and many other gentlemen of the county, by which they are empowered to try treasons, felonies, &c and this is the largest commission they have. 3. A commission of general gaol-delivery, directed to the judges and the clerk of assize associate, which gives them power to try every prisoner in the gaol committed for any offence whatsoever, but none except

prisoners in the gaol: so that one way or other they rid the gaol of all the prisoners in it. 4. A commission of assize, directed to the judges and clerk of assize, to take assizes; that is to take the verdict of a peculiar species of jury called an assize, and summoned for the trial of landed disputes: the other authority is, 5. That of nisi prius, which is a consequence of the commission of assize, being annexed to the office of those justices by the statute of Westm. 2. 13 Edw. I. c. 30. And it empowers them to try all questions of fact issuing out of the courts of Westminster, that are then ripe for trial by jury. Formerly, the judges could not act in counties where they resided or were born; but this custom is abrogated by 49 Geo. 3. c. 91.

Assize, or jury, in Scots law, consists of fifteen sworn men, (juratores,) picked out by the court from a greater number, not exceeding forty-five, who have been summoned for that purpose by the sheriff, and given in a list to the defender, at serving him with a copy of his libel.

ASSIZER, or Assiser, from assize; an officer that has the care and oversight of weights and measures in various parts of England.

ASSO'CIATE, *v. n.* & *adj.* } Lat. *adsocio*,
Associa'tion, } from *ad*, and *so-*
Associa'tor. } *cio*, from *sequor*,

to follow. To meet together as equals, to keep in company, to be partners, confederates.

Their defender, and his *associates*, have sithence proposed to the world a form, such as themselves like. *Hooker.*

The church, being a society, hath the self-same original grounds which other politick societies have; the natural inclination which all men have unto sociable life, and consent to some certain bond of *association*; which bond is the law that appointeth what kind of order they should be *associated* in. *Id.*

A fearful army, led by Caius Marcius,
Associated with Aufidius, rages
Upon our territories. *Shakspeare.*

Sole Eve, *associate* sole, to me (beyond
Compare) above all living creatures dear.
Milton.

Associate in your town a wand'ring train;
And strangers in your palace entertain. *Dryden.*

He was accompanied with a noble gentleman, no unsuitable *associate*. *Wotton.*

They persuade the king, now in old age, to make Plangus his *associate* in government with him. *Sidney.*

Self-denial is a kind of holy *association* with God; and, by making you his partner, interests you in all his happiness. *Boyle.*

Association of ideas is of great importance, and may be of excellent use. *Watts.*

But my *associates* now my stay deplore,
Impatient. *Pope. Odyssey.*

Associate Presbytery, the title first assumed by those clergymen who associated together, after seceding from the church of Scotland, in 1733.

Associate Synod, was the highest ecclesiastical court among the Antiburgher Seceders of Scotland. Its decisions being final, like those of the General Assembly. See Antiburgher and Seceders.

Association, in law, is a patent by the king, either of his own motion, or at the suit of a party plaintiff, to the justices of assize; to have other persons *associated* with them, in order to take the assize.

Association of Ideas, is where two or more ideas constantly and immediately accompany or succeed one another in the mind, so that one shall almost infallibly produce the other, whether there be any natural relation between them or not. See Metaphysics. Wrong combinations of ideas, Mr. Locke shows, are a great cause of the irreconcileable opposition between different sects of philosophy and religion: for we cannot imagine, that all who hold tenets different from, and sometimes even contradictory to one another, should wilfully and knowingly impose upon themselves, or refuse truth offered by plain reason: but some loose and independent ideas are by education, custom, and the constant din of party, so coupled in their minds, that they always appear there together: these they can no more separate in their thoughts, than if they were but one idea; and they operate as if they were so. This gives the appearance of sense to jargon, of demonstration to absurdities, and of consistency to nonsense. It is the foundation of the greatest, and almost of all the errors in the world. Association forms a principal part of Dr. Hartley's mechanical theory of the mind. He distinguishes it into synchronous and successive; and ascribes our simple and complex ideas to the influence of this principle or habit. Particular sensations result from previous vibrations conveyed through the nerves to the medullary substance of the brain; and these are so intimately associated together, that any one of them, when impressed alone, shall be able to excite in the mind the ideas of all the rest. Thus we derive the ideas of natural bodies from the association of the several sensible qualities with the names that express them, and with each other. The sight of part of a large building suggests the idea of the rest instantaneously, by a synchronous association of the parts; and the sound of the words, which begin a similar sentence, brings to remembrance the remaining parts, in order, by successive association. Dr. Hartley maintains, that simple ideas run into complex ones by association; and apprehends, that, by pursuing and perfecting this doctrine, we may some time or other be enabled to analyse those complex ideas, that are commonly called the ideas of reflection, or intellectual ideas, into their several component parts, i. e. into the simple ideas of sensation of which they consist; and that this may be of considerable use in the art of logic, and in explaining the various phenomena of the human mind.

ASSODES, in medicine, a continued fever, wherein the surface is moderately warm, but the internal heat great.

ASSOIL', } Supposed to be from the
Assoil'ment. } Fr. *absoudre*; Lat. *absolvere*, to loose or free from. To absolve from guilt; to liberate from punishment; to pardon, to forgive.

This is my drede, and ye, my brethren tweie,
Assoileth me this question I preie.
Chaucer. The Marchantes Tale.

But secretly *assoiling* of his sin,
No other med'cine will unto him lay.
Mirror for Magistrates.

I also wyll aske of you a certayne question, whiche yf ye *assoyle* me, I in lykewyse wyll tell you by what auctoriæ . do these thynges.

Bible, 1551. *Matthew* ch. xxi.

But with such guilefull appendices of oathes imposed on him, that this *assoilement* was not so much the epilogue of his olde, as the prologue of his new tragicall vexations.

Speed's History of Great Britaine.

To ASSOILE, in our ancient law books, signifies to absolve from an excommunication.

ASSONANCE, in rhetoric and poetry, a term used where the words of a phrase or verse have the same sound or termination, and yet make no proper rhyme. These are usually accounted vicious in English; though the Romans sometimes used them with elegance: as, Militem comparavit, exercitum ordinavat, aciem lustravit.

ASSOR'T, ASSORT'MENT. Fr. *assortir*, from the Lat. *sors*, lot. To sort, to put things of the same kind or class together, to match, to suit.

Ye ne be but fools of good disport!
I wole you teachen a new play;
Sit down here by one *assort*,
And better mirth never ye seigh.

Sir Ferumbras, in Ellis, v. ii. p. 401.

A taylor sat musically at it in a shed over against the convent, in *assorting* four dozen of bells for the harness, whistling to each bell as he tied it on with a thong. *Sterne's Tristram Shandy.*

An adjective is by nature a general, and in some measure an abstract word, and necessarily presupposes the idea of a certain species or assortment of things, to all of which it is equally applicable.

Smith's Moral Sentiments.

ASSOS, a sea-port of Natolia, subject to the Turks, on a bay of the Ægean Sea, twelve miles south-east of Troas.

ASSRUMINA, in botany, the name given by the people of Guinea to the shrub whose leaves they use as a cure for long worms, which are found in their flesh: they bruise the leaves, and apply a large lump of the mass to the part.

ASSUA'GE, ASSUAGE'MENT, ASSUA'SIVE. Old Fr. *assouager*. The modern Fr. is *soulager*. To soften, to alleviate pain or grief, to lessen, to allay, to render tranquil.

Tell me, when shall these weary woes have end;
Or shall their ruthless torment never cease,
But all my days in pining languor spend,
Without hope of *assuagement* or release?

Spenser's Sonnets.

Shall I, t' *assuage*
Their brutal rage,
The regal stem destroy?

Dryden's Albion.

The rest
Was broiled and roasted for the future feast,
The chief invited guests were set around;
And, hunger first *aswag'd*, the bowls were crown'd,
Which in deep draughts their cares and labours drown'd.

Id. Fables.

If in the breast tumultuous joys arise,
Musick her soft *assuasive* voice supplies.

Pope's St. Cæcilia.

Refreshing winds the summer's heats *assuage*;
And kindly warmth disarms the winter's rage.

Addison.

Patroclus sat contentedly beside
Eurypylus, with many a pleasant theme,
Soothing the generous warrior, and his wound
Sprinkling with drugs *assuasive* of his pains.

Cowper's Iliad, bk. xv. p. 274.

ASSUEFACTION, AS'SUETUDE. *Assuefacio, assuefactum*, to accustom. The state of being accustomed.

We see that *assuetude* of things hurtful, doth make them lose the force to hurt.

Bacon's Natural History.

Right and left, as parts inservient unto the motive faculty, are differenced by degrees from use and *assuefaction*, or according whereto the one grows stronger.

Brown's Vulgar Errours.

ASSUME', ASSU'MER, ASSU'MING, ASSUMPT', *v.* & *n.* ASSUMP'TION. *Assumo, assumptum, ad* and *sumo*, to take to [one's self.] To appropriate, to claim more than is due, to arrogate, to suppose something granted without proof.

Preserve the right of thy place, but stir not questions of jurisdiction; and rather *assume* thy right in silence, and de facto, than voice it with claims and challenges. *Lord Bacon's Essays.*

His majesty might well *assume* the complaint and expression of king David. *Clarendon.*

With ravish'd ears
The monarch hears;
Assumes the god,
Affects to nod;
And seems to shake the spheres. *Dryden.*

His haughty looks, and his *assuming* air,
The son of Isis could no longer bear. *Id.*

This makes him over-forward in business, *assuming* in conversation, and peremptory in answers. *Collier.*

For spirits freed from mortal laws, with ease
Assume what sexes and what shapes they please.

Pope.

This, when the various god had urg'd in vain,
He strait *assum'd* his native form again. *Id.*

The personal descent of God himself, and his *assumption* of our flesh to his divinity, more familiarly to insinuate his pleasure to us, was an enforcement beyond all methods of wisdom.

Hammond's Fundamentals.

In every hypothesis something is allowed to be *assumed*. *Boyle.*

Upon the feast of the *assumption* of the Blessed Virgin, the pope and cardinals keep the vespers.

Stillingfleet.

Adam, after a certain period of years, would have been rewarded with an *assumption* to eternal felicity.

Wake.

It is scarce possible to conceive any scene so truly agreeable, as an assembly of people elaborately educated, who *assume* a character superior to ordinary life, and support it with ease and familiarity. *Usher.*

It very seldom happens that a man is slow enough in *assuming* the character of a husband, or a woman quick enough in condescending to that of a wife.

Steele.

Habits are soon *assumed*, but when we strive
To strip them off, 'tis being flayed alive. *Cowper.*

ASSU'MENT. *Assuo*, to stitch or tack on. A tacking on.

This *assument* or addition, Dr. Marshall says, he never could find any where but in this Anglo-Saxonick translation, and that very ancient Greek and Latin MS copy of Beza's.

Lewis's Editions of the Eng. Trans. of the Bible.

ASSUMPSIT, in the law of England, or promise, is of the nature of a verbal covenant, and wants nothing but the solemnity of writing

and sealing to make it absolutely the same. If therefore, it be to do any explicit act, it is an express contract, as much as any covenant: and the breach of it is an equal injury. The remedy indeed is not exactly the same: since, instead of an action of covenant, there only lies an action upon the case, for what is called an assumpsit or undertaking of the defendant; the failure of performing which, is the wrong or injury done to the plaintiff, the damages whereof a jury are to estimate and settle. As, if a builder promises or undertakes, that he will build and cover a house within a limited time, and fails to do it, an action on the case arises against the builder, and the party injured may recover a pecuniary satisfaction. But some agreements, though ever so expressly made, are deemed of so important a nature, that they ought not to rest on a verbal promise only, which cannot be proved but by the memory of witnesses, and which oftentimes leads to perjury. To prevent this, the statute of frauds and perjuries, 29 Car. II. c. 3. enacts, that in the five following cases, no verbal promise shall be sufficient to ground an action upon; but at the least some note or memorandum of it shall be made in writing, and signed by the party to be charged therewith: 1. Where an executor or administrator promises to answer damages out of his own estate. 2. Where a man undertakes to answer for the debt, default, or miscarriage, of another. 3. Where any agreement is made upon consideration of marriage. 4. Where any contract or sale is made of lands, tenements, or hereditaments, or any interest therein. 5. And lastly, where there is any agreement that is not to be performed within a year from the making thereof. In all these cases, a mere verbal assumpsit is void.

Assumption, a festival in the Romish church, in honor of the miraculous ascent of the Virgin Mary into heaven: the Greek church, who also observe this festival, celebrate it on the 15th of August with great ceremony.

Assumption, or Assongong, one of the Ladrone islands, in the Pacific Ocean. Father Gobien asserts that it is eighteen miles in circumference; but Perouse diminishes its size to three. It is of a conical figure, rising 600 feet in height, of dreary aspect, and almost covered with lava from the eruptions of a volcano in the centre. A few cocoa-nut trees are found on the island; but there is no anchorage near the shore. Fifteen miles south of St. Lawrence. Long. 140° 55′ E., lat. 19° 45′ N.

Assumption, the capital city of Paraguay, in America. It is situated on the eastern bank of the river Paraguay, eighteen miles above its junction with the first mouth of the Pilcomayo. It was originally a small fort, built in 1538, and in 1547 was erected into a bishopric. It is now inhabited by about 500 families of Spaniards, and several thousand Indians and Mestizoes.

Assumptive Arms, in heraldry, are such as a person has a right to assume, with the approbation of his sovereign, and of the heralds: thus, if a person, who has no right by blood, and has no coat of arms, shall captivate, in any lawful war, any gentleman, nobleman, or prince, he is, in that case, entitled to bear the shield of that prisoner, and enjoy it to him and his heirs for ever.

ASSURE′, Assur′ed, Assur′ance, Assur′edly, Assur′edness. } Fr. *assurer*, to make sure. To secure, to assert, aver, warrant, vouch, certify, inspire with confidence.

What man is he that boasts of fleshly might,
And vain *assurance* of mortality;
Which all so soon, as it doth come to fight
Against spiritual foes, yields by and by.
Faerie Queene.

I must confess, your offer is the best;
And, let your father make her the *assurance*,
She is your own, else you must pardon me;
If you should die before him, where's her dower?
Shakspeare.

I hold the entry of common-places to be a matter of great use and essence in studying, as that which *assureth* copiousness of invention, and contracteth judgment to a strength. *Bacon's Essays.*

An *assurance*, being passed through for a competent fine, hath come back again by reason of some oversight. *Id.*

I revive
At this last sight; *assur'd*, that man shall live
With all the creatures, and their seed preserve.
Milton

Well is that part of us lost which may give *assurance* of the salvation of the whole.
Hall's Contemplations.

Assuredly he will stop our liberty, till we restore him his worship. *South.*

It is the ennobling office of the understanding to correct the fallacious and mistaken reports of the senses, and to *assure* us that the staff in the water is straight though our eye would tell us it is crooked.
Id.

The obedient, and the man of practice, shall outgrow all their doubts and ignorances; till persuasion pass into knowledge, and knowledge advance into *assurance*. *Id.*

Hath he found in an evil course that comfortable *assurance* of God's favour, and good hopes of his future condition, which a religious life would have given him! *Tillotson.*

Almanz. No; there is a necessity in fate;
Why still the brave bold man is fortunate;
He keeps his object ever full in sight,
And that *assurance* holds him firm and right.
Dryden. Conquest of Granada, part i.

A man without *assurance* is liable to be made uneasy by the folly or ill-nature of every one he converses with.
Melmoth's Translation of Cicero's Lælius

How happy it is to believe with a stedfast *assurance* that our petitions are heard even while we are making them, and how delightful to meet with a proof of it in the effectual and actual grant of them.
Cowper's Letters.

The soul reposing on *assured* relief,
Feels herself happy amidst all her grief;
Forgets her labour, as she toils along,
Weeps tears of joy, and bursts into a song.
Cowper.

ASSURANCE.

ASSURANCE, or INSURANCE, in commercial affairs. Under the latter word, every thing connected with the subjects, both of life and of marine insurance, might with great propriety be arranged. But mercantile usage, and the titles of various respectable societies in this country, have appropriated the former word to contracts for paying sums of money upon the continuance of life, or in the event of death; and the latter, to the insurance of property against the contingencies of the sea. We propose, under LIFE ANNUITIES, to enter further into the principles on which the contingency of life is calculated; under MARINE INSURANCE, to treat of all that is usually comprised under that head; confining ourselves in this paper to the practical detail of the methods adopted by the most respectable Assurance companies in the conduct of their affairs, and the actual calculations on which they proceed.

Assurance on lives is the guaranteeing a certain sum of money to be paid in the event of a person named being alive at a certain time, or dying within a certain time, or to be paid within a certain time after the death of a person named. The party agreeing to pay this sum, is termed the Assurer; the sum he receives for his hazard, or in compensation for what he is to pay, is called the Premium of assurance; and the instrument by which the parties are mutually bound to their contract, is called a Policy of assurance. These are granted sometimes by individuals; but in this case the policies, though often for larger sums than the companies insure, are usually for short periods, and at higher rates than the companies charge. It must be obvious, that as they are particular bargains between individuals under circumstances known, particularly, perhaps, or that ought to be known by those concerned, no uniform plan of proceeding can be expected.

But the respectable societies who conduct this business in the metropolis, and other parts of Great Britain, proceed upon settled and mathematical principles. Tables of the ordinary duration of human life, formed from bills of mortality, are the basis of their calculations. The register of mortality at Northampton, originally published by Dr. Price, is that generally adopted; it having been found by long experience that rather fewer deaths happen, according to the books of the Equitable Assurance Society, than are upon that scale to be expected. The most esteemed tables are those of Aikin, De Parcieux, Kerseboom, and Gorsuch. M. de Moivre assumes, that if eighty-six persons were born at the same time, one would die in each year, until the whole number ceased to live. Although this hypothesis has not been found accurate enough for extensive business in this way, it furnishes an easy rate for estimating the expectation of life. Subtract the given age of a person from 86; when, dividing the quotient by two, the remainder gives the expectation nearly. Thus, let the age be 40, then $\frac{86-40}{2}$ is 23, which differs very little from the Northampton table. At the age of 50 again, the error is trifling, the Northampton table giving 17·99, De Moivre's, 18. But, in the higher ages, the error becomes considerable.

A scale of life having been adopted, the table of premiums to be paid by the parties insuring is calculated in the following manner:—The premium for a certain age being supposed to be known, then the premium for a person of one year younger, being compounded of the premium for one year and the present value of the above premium, is easily calculated from the table of lives, thus:—Multiply the premium on the oldest life into the number of persons alive in the tables of that age, and divide by the number of persons of the younger age alive in the tables. This sum, discounted for a year, gives the premium for assuring the desired sum at the end of the year. Then multiply the sum to be assured into the number of persons of the younger age, that die according to the tables in a year, and divide by the number of persons alive at that age, and this sum discounted for a year is the assurance of the sum for the first year, and consequently the two sums, added together, give the desired premium. Now, as the oldest person in the scale of life dies in the ensuing year, the premium on him is evidently the sum to be paid discounted for one year, and thence the premium for the age below is ascertained by the above rule; and so of every age in succession. Errors cannot be committed on this plan without detection, as every step is checked by a similar table drawn out for the value of an annuity at each age. In the same manner are tables formed for the assurance of a sum payable at the death of one out of two persons, or at the death of the survivor of two persons, or at the death of one on the contingency of his surviving another, and so on. The tables generally adopted by the companies, on the contingency of one person surviving another, being calculated by an approximation, founded on the expectation of their lives, do not partake of the mathematical accuracy of the other tables; but the companies, in this case, grant assurances at times to their own disadvantage; for if they take rather too much upon one life, they lose that sum upon the other; the premium payable on the death of one of two parties, being divided by the above-mentioned rule of approximation into two premiums, to be paid by the two parties on the contingency of one surviving the other. These rules apply to tables of rates for the payment of a gross premium: but as it is generally more convenient to pay an equivalent annual sum, a table of rates is made for this case, which is formed by dividing the gross premium by the value of an annuity upon each age added to unity. If the annual premium were paid at the end of the year, the addition of unity would be unnecessary; but a policy is not granted till one premium is paid, and hence the necessity of the addition is obvious.

Premiums being thus settled from a fixed table of observations on life, it is evident that, unless

the deaths happen exactly in the order prescribed by the tables, there will be a surplus or deficiency of capital for the payment of the assured sums. The management of the surplus, or apprehended surplus, which the prudence of respectable companies generally insures, is different in different companies. Either the company appropriates the whole of the surplus to itself, or makes a compensation to the assured for it. In the former case, the company pays the sum specified in the policy, and no more; consequently, a party may pay to the office a sum far greater than his executors or assigns receive in return. Thus, if an assurance is effected on a person between sixteen and seventeen for £100, receivable at his death, the annual premium is £2. 0*s*. 8*d*.; and if he lives forty-nine years, he will have paid more than the whole sum to be received, without computing interest on these payments. The surplus of the accumulation of premiums above the claims may be great from two causes: first, the increased interest obtained by the company above that by which the table of rates was computed; and, second, a longer duration of life in the earlier years than is assigned by the table; and here great circumspection on the part of the company is requisite to preserve it from imposition, and to secure the best lives that circumstances admit. In the companies where only the sum specified in the policy is paid, the surplus does not go entirely to the company; for it is common in these offices to allow a per centage on the premium to the party who brings an assurance to them, generally a solicitor, who thus participating in the gains of the company, has an interest in increasing its concerns, though to the evident disadvantage of his client.

Where the surplus is made advantageous to the assured, two methods are adopted; the one is to add, at certain periods, a sum to each policy; the other to diminish the premium. In both cases a valuation is made of all the annual premiums, with the past and future expected accumulations, and also of the claims upon every policy. If the former exceed the latter to a sufficient amount, then an addition is made to each policy, or the premium is diminished. It is necessary, however, that the utmost care should be taken to secure to each policy the sum named in it, with every addition made to it; and hence a third part of the surplus is constantly retained to guard against possible contingencies. This reservation has occasioned a singular anomaly in one of the most distinguished companies for life assurance. In that company all are partners, being mutually guarantees to each other for the payment of their respective claims. The surplus arising from the excess of premiums, with their accumulations above the claims, evidently belongs to the whole company, and consequently each partner is entitled to a portion of it. But of this surplus, a third being constantly reserved, and each person at his death ceasing to be a partner, every person leaves behind him a portion for his successors. Such has been the extreme caution of the Equitable Society.

This led to the formation of a plan, which is adopted by the Rock Assurance Society, that vests this third in determinate hands. To do this, the company consists of a number of proprietors, each of whom is bound to keep up an assurance with it, and whose interest in these assurances is greater than that derived from the profit of assurances granted to non-proprietors. The company takes upon itself the whole risk of policies made with it, being bound to pay to each party assured the sum specified in his policy; and additions are made to each policy in the manner above-mentioned. But the third reserved is joined to, and makes part of the subscription capital stock; and the interest upon it is annually divided among the proprietors. Thus the third reserved belongs to, and continues to add to, the security of the company; and the non-proprietor, secured from all risk, participates in the two-thirds divisible at every period.

Other modes are sometimes adopted to dispose of accumulating property; such as, by diminishing, at certain periods, the premiums paid on assurance; in this case the sum specified in the policy is paid, though the party assured may have paid a much less sum than in the companies above mentioned. The diminution of premium depends on the excess of capital in hand, with the present value of future premiums, above the claims that are or may be made upon it, and consequently the same care is necessary to reserve a part of the surplus for fear of future contingencies. The public have thus a choice either to receive a fixed or an increasing sum; the fixed sum by means of a definite or a probably decreasing premium, and an increasing sum by means of a definite premium.

Assurance policies are generally confined to the limits of Europe, but they are capable of being extended to all parts of the world. In such cases an addition is made to the premium, according to the supposed addition to the risk from unhealthiness of climate, and danger of the seas. Additions are also made to the premium on account of the profession (as of the army) of the assured; on account of disease, as of gout, by which he is occasionally afflicted; or of diseases, as of small-pox and measles, to which he may be liable.

The oldest of the societies for assurances on lives in London, is the Amicable Society, instituted by charter in the year 1706. The same contribution was originally required from every member, whatever his age might be, and the sums received at the death of members were variable, depending on the number of persons that died in the same year. Subsequent alterations were made in this company by successive charters. At present the several interests of the members are divided into shares, each share being now warranted to produce £200 at the death of the insured, together with such additions as may arise from the circumstances of the year in which the death happens; and any number of shares and half shares, not exceeding sixty-five shares, may be granted on one and the same life, by which assurances may be effected from £200 to £5000, and participate in the benefits of the society.

The Royal Exchange Assurance Company re-

ceived its charter in 1720, and is principally engaged in insuring ships and goods at sea, and of houses and goods from fire; but it also grants annuities and assurances on life. In the latter, it confines itself to the payment of the sum assured.

The Equitable is the most considerable in point of numbers, and, on the whole, perhaps the most respectable of the societies for the assurance of lives, to which it is chiefly confined. In this society all are partners, and mutually assurers of each other. It arose from small beginnings, and has made considerable alterations from the rate of its first premiums, till it settled in the table annexed to this article, which is that generally adopted by these associations. At certain periods additions have been made to the policies; and, in this manner, its affairs were conducted till December 7, 1809, when a change took place respecting the members then assured, namely, that instead of waiting till the end of the next interval, for assigning a sum out of the accumulations to each policy, every member should have two per cent. annually assigned to his policy, during the years of this period. Consequently, all holders of policies, prior to the year 1810, will leave to their heirs the sum assured by the policy, together with its accumulations up to the year 1810, and also two per cent. per annum for his life, within 1810 and 1820; but this benefit does not accrue to members entering at the close of the year 1809. Whether this plan can be continued or extended, time will show. The number of the members in this society made it necessary to change some of their regulations respecting votes; and it was wisely resolved, that persons becoming members, after the 19th December 1809, should not have a vote at the general meetings, unless they had been assured for five years, for the whole continuance of life, in the sum of £2000; and to be a director, the qualification is an assurance of £5000 for the same time, which must have been held for five years.

The history of this society is very important, and has been well treated by Dr. Price, in his Observations on Reversionary Payments, and by Mr. Morgan. In consequence of the connexion of Dr. Price with this institution, he drew up his remarks on the various societies which soon after sprung up, and whose names, but for his notice of them, would now be forgotten. They were formed chiefly about the years 1770 and 1771, offering very fallacious terms to the public, by which the aged were benefited at the expense of their juniors; and the evil is not yet cured.

For some time no other important society arose; but, in the year 1792, the Westminster Life Assurance was formed. The Pelican in 1797; the Globe in 1799; the Albion in 1805; the Rock and the Provident in 1806; the Eagle, Hope, London Life Association, and Atlas, in 1807. The Rock and Equitable we have noticed.

The Provident combines with life, policies on fire; but it assigns also, at certain times, additions to its policies. The Hope is also a fire and life office, and both are proprietary companies. The rates in these societies are the same as those in the Equitable and Rock.

The Albion and the Globe are life and fire assurance companies; their rates are also the same. They pay also the sum assured; but a liberal commission is allowed to solicitors, and to others who effect assurances.

The London Life Association is confined entirely to life assurances; but it differs from the others in this, that its aim is, that the benefits resulting from its transactions shall be enjoyed by the members during life; in other words, the society assures to a person the sum named in the policy, and no more; but at certain times it considers whether the surplus of the accumulations above the claims is sufficient to admit of a diminution of premium, and one is made accordingly. In this society all are members and assurers one of the other, and consequently the surviving members at any time are bound to make up the deficiency, if any should arise by this mode of arrangement. This could be done by raising, in the first instance, the premiums that have been lowered; and it is very improbable, that, with good management, any thing farther would be necessary. In imitation of these London Companies, several have been formed throughout the country.

The practical mode of effecting an assurance in these societies is as follows: The party desirous of effecting an assurance, receives from the office of the company a printed paper called a declaration, which he fills up with the name of the party to be assured, his age, the place and time of his birth, and place of his present residence, with certain particulars as to his health. This declaration is then duly signed; and it contains a clause, stating, that any falsehood in the declaration invalidates the policy. To corroborate the statement, references are given to two persons well acquainted with the party on whom the assurance is made, one of whom is to be a medical person, and sometimes more references are required. The reasons for these precautions are obvious.

When the declaration has been thus completed, the person by whom the assurance is made makes his appearance before the directors of the company, who enquire into the general state of his health, and a minute is entered in their books accordingly. The letter of the referees, with the declaration, are subsequently laid before the court, which from these documents, and information frequently derived from other sources, forms its decision; and this is entered on the minutes of the court, and communicated to the applicant. A certain time is allowed for the payment of the premium; and if it is not paid within that time, the assurance cannot be effected, but by a fresh application to the court, according to the forms above mentioned. On the payment of the premium a receipt is given, containing the number of the policy, which is then made out according to the declaration, inspected by the court, signed by a certain number of directors, and delivered to the other party interested in it.

If the person, on whose life the assurance is made cannot appear before the directors, or any

one appointed by them for that purpose, an additional sum is charged for non-appearance. There is also a duty to be paid to government on each policy, and this, with a small entrance fee, makes an addition to the first year's premium. But the premium itself is only named in the policy, as on the future payment of this sum its existence depends.

A policy is assignable; and it often forms a security for sums advanced, and not unfrequently becomes an object of sale. In these cases, the holder of the policy pays the future premiums, and the advantage of a purchaser consists in holding a policy at a less premium than he must have paid at the present age of the party, on whose life the assurance was made. Thus, supposing a policy to have been granted for the payment of a thousand pounds, at the death of a party aged between thirty-seven and thirty-eight, when the policy was made; suppose it is sold when the party is between fifty and fifty-one; the purchaser will have to pay £32. 5*s.* annually, during the existence of the policy: whereas, if he had taken out a policy at the present age of the party, his premium would be £46. 15*s.* For the difference between these two sums, namely £14. 10*s.*, a price is fixed on; but it is to be observed, that, in the sale of a policy in the market, this disadvantage attends it,—that the bidders, not being acquainted with the person on whose life the policy is made, and being liable to trouble and expense, to ascertain that he is alive at each payment of the premium, must make a deduction on this account, from what they might otherwise presume to be a compensation for the difference between the two premiums.

On the death of the party on whom the claim depends, certain documents are required, such as the register of the burial of the deceased; and references to the medical persons or others who attended him in his last illness; and, if he effected the policy himself, the probate of his will, or, if it has been assigned to another, the copy of the assignment. The grounds of these precautions are, with respect to the receiver of the sum assured, obvious; and the nature of the death must be ascertained; as, in case of suicide, or dying by the hands of justice, or on a voyage on the high seas, without licence from the company, (except, in general, in going from one part in the united kingdom to another,) the policy is vitiated. In the interval between the notice of the party's death, and the time assigned for the payment of the claim, due investigation is made; and, every thing having been found satisfactory, the claimant brings with him the policy and a receipt for the sum claimed, which is immediately paid to him; the seals are torn from the policy, and the contract is at an end. In the case that a claim is payable, in the event of a person being alive at a certain time, his appearance before the court is requisite, or sufficient proof must be given that he was alive at the time defined by the policy.

Policies depending on a person being alive at a certain time, are very rare, and chiefly confined to endowments for children, in which case the payment of a gross sum down, or of an annual payment till the child attains the age of twenty-one, secures to that child, at that age, the sum named in the policy. This mode of assurance has led some offices to compose a table of rates, according to which, a person at the age of twenty is required to pay a premium, which would produce at legal interest more than he would receive at the expiration of the year, from the company; and thus a person, if any such could be found, to effect an assurance of this kind, would run the risk of losing the sum assured, and receive, if successful, not so much as he could have attained without any risk at all.

On the whole, the doctrine of assurance must always be considered a subject of the first importance, in a commercial state like that of Great Britain, and to involve an immense number of interests. When we consider the thousands of families in this country, who are living in a state of comparative affluence, without possessing any, or very little, disposable property; whose income, in fact, depends almost entirely on the exertions of the head of the family, and with the extinction of whose life every source of income ceases; when we contemplate the poverty and distress in which many widows, with their helpless children, would be plunged by such an event, we cannot estimate too highly the advantages which are held out by those societies, who, on honorable principles, furnish the means whereby every provident father and husband may, in part, avert the consequences of a premature death; to which every one is liable, and against which event every man ought to be provided. Perhaps, no part of the civil economy of this country shows more decidedly the high moral state of the middling classes of the people, than the immense amount of life assurances effected in the different offices of the metropolis, and in those of like local companies in several of the counties in England; nor, perhaps, can we have a stronger instance of the high degree of confidence that the people are disposed to place in the moral rectitude of the government: by far the greater part of the capital of the companies to which we have alluded being invested under government securities.

The following is a table of the rates generally acted upon by the Life Assurance Offices in the capital.

ASSURANCE OF SINGLE LIVES.

To secure a Sum to the Nominee, or to the lawful Representatives of the Assured.

Age.	Premium per cent. if assured from year to year.			Premium per cent. per an. if assured for seven years.			Premium per cent. per an. if assured for the whole term of life.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
8 to 14	0	17	9	1	1	5	1	17	7
15	0	17	11	1	2	11	1	18	7
16	0	19	2	1	4	7	1	19	8
17	1	1	2	1	6	1	2	0	8
18	1	3	3	1	7	5	2	1	8
19	1	5	0	1	8	6	2	2	8
20	1	7	3	1	9	5	2	3	7
21	1	8	10	1	10	1	2	4	6
22	1	9	3	1	10	6	2	5	4
23	1	9	8	1	11	0	2	6	3
24	1	10	2	1	11	6	2	7	1
25	1	10	7	1	12	1	2	8	1
26	1	11	1	1	12	7	2	9	1
27	1	11	7	1	13	2	2	10	1
28	1	12	1	1	13	9	2	11	1
29	1	12	8	1	14	4	2	12	3
30	1	13	3	1	14	11	2	13	5
31	1	13	9	1	15	7	2	14	7
32	1	14	4	1	16	3	2	15	9
33	1	15	0	1	16	10	2	17	1
34	1	15	8	1	17	8	2	18	5
35	1	16	4	1	18	10	2	19	10
36	1	17	0	1	19	7	3	1	4
37	1	17	9	2	0	8	3	2	10
38	1	18	6	2	1	9	3	4	6
39	1	19	3	2	2	11	3	6	2
40	2	0	8	2	4	1	3	7	11
41	2	2	0	2	5	4	3	9	9
42	2	3	6	2	6	6	3	11	8
43	2	4	6	2	7	9	3	13	8
44	2	5	6	2	9	2	3	15	9
45	2	6	8	2	10	10	3	17	11
46	2	7	10	2	12	6	4	0	2
47	2	9	0	2	14	4	4	2	7
48	2	10	3	2	16	4	4	5	1
49	2	12	3	2	18	6	4	7	10
50	2	15	1	3	0	8	4	10	8
51	2	17	4	3	2	8	4	13	6
52	2	19	1	3	4	9	4	16	5
53	3	1	0	3	7	0	4	19	7
54	3	3	0	3	9	5	5	2	10
55	3	5	0	3	12	0	5	6	4
56	3	7	3	3	14	8	5	10	1
57	3	9	8	3	17	6	5	14	0
58	3	12	3	4	0	6	5	18	2
59	3	15	1	4	3	8	6	2	8
60	3	18	1	4	7	1	6	7	4
61	4	1	5	4	10	11	6	12	4
62	4	3	11	4	15	0	6	17	9
63	4	7	8	4	19	8	7	3	7
64	4	10	9	5	4	10	7	9	10
65	4	15	2	5	10	10	7	16	9
66	5	0	1	5	17	7	8	4	1
67	5	5	6	6	5	2	8	12	1

SURVIVORSHIP OF A LIFE ASSURED.

To secure a Sum to the Nominee or lawful Representatives of the Assured, in case a Person named shall survive another.

Age of the life assured.	Age of the life against which the assured is made.	Premium per cent. per annum.		
		£.	s.	d.
10	10	1	8	6
	20	1	9	1
	30	1	8	3
	40	1	7	8
	50	1	6	11
	60	1	6	0
	70	1	4	11
	80	1	3	4
20	10	1	16	6
	20	1	17	0
	30	1	15	9
	40	1	14	8
	50	1	13	6
	60	1	12	1
	70	1	10	6
	80	1	8	3
30	10	2	5	5
	20	2	6	0
	30	2	4	6
	40	2	2	9
	50	2	0	11
	60	1	18	10
	70	1	16	7
	80	1	13	9
40	10	2	19	2
	20	2	19	10
	30	2	18	2
	40	2	15	11
	50	2	12	10
	60	2	9	4
	70	2	5	11
	80	2	1	10
50	10	4	0	11
	20	4	1	10
	30	4	0	1
	40	3	17	10
	50	3	13	10
	60	3	7	7
	70	3	1	6
	80	2	15	0
60	10	5	16	9
	20	5	18	0
	30	5	16	3
	40	5	14	0
	50	5	10	7
	60	5	2	4
	70	4	9	10
	80	3	17	11
67	10	8	1	0
	20	8	2	9
	30	8	0	10
	40	7	18	7
	50	7	15	6
	60	7	8	8
	70	6	10	8
	80	5	8	9

ASSURANCE ON TWO JOINT LIVES.

To secure a Sum, payable when either of Two Persons named shall happen to die.

Age.	Age.	Premium per cent per annum.			Age.	Age.	Premium per cent. per annum.		
		£.	s.	d.			£.	s.	d.
10	10	2	17	1	30	30	4	8	11
	15	3	1	1		35	4	14	1
	20	3	5	7		40	5	0	11
	25	3	9	3		45	5	9	6
	30	3	13	9		50	6	1	0
	35	3	19	6		55	6	15	5
	40	4	6	10		60	7	15	0
	45	4	15	11		67	9	18	1
	50	5	7	10					
	55	6	2	8	35	35	4	19	0
	60	7	2	9		40	5	5	6
	67	9	6	3		45	5	13	10
						50	6	5	0
15	15	3	5	0		55	6	19	2
	20	3	9	6		60	7	18	6
	25	3	13	1		67	10	1	2
	30	3	17	6					
	35	4	3	1	40	40	5	11	9
	40	4	10	4		45	5	19	9
	45	4	19	5		50	6	10	8
	50	5	11	3		55	7	4	5
	55	6	6	1		60	8	3	4
	60	7	6	0		67	10	5	6
	67	9	9	5					
					45	45	6	7	4
20	20	3	13	11		50	6	17	9
	25	3	17	5		55	7	11	0
	30	4	1	9		60	8	9	6
	35	4	7	3		67	10	11	1
	40	4	14	6					
	45	5	3	6	50	50	7	7	8
	50	5	15	4		55	8	0	3
	55	6	10	2		60	8	18	2
	60	7	10	2		67	10	18	10
	67	9	13	9					
					55	55	8	12	2
25	25	4	0	10		60	9	9	0
	30	4	5	0		67	11	8	5
	35	4	10	3					
	40	4	17	4					
	45	5	6	2	60	60	10	4	9
	50	5	17	10		67	12	2	1
	55	6	12	6					
	60	7	12	5					
	67	9	15	9	67	67	13	15	8

ASSURGENT LEAVES, in botany, denote such as are first bent down, and then rise erect towards the apex.

ASSUS, or Assos, in ancient geography, a town of Troas, though by others supposed to be of Mysia, and the same with Apollonia, but different from the Apollonia on the Rhyndacus. Ptolemy places it on the sea coast, but Strabo more inland. It was the country of Cleanthes, the stoic philosopher, who succeeded Zeno. St. Luke and others of St. Paul's companions in his voyage, Acts xx. 13, 14, went by sea from Troas to Assos: but St. Paul went thither by land; and, meeting them at Assos, they all went together to Mitilene.

ASSYRIA, an ancient kingdom of Asia, concerning the extent, commencement, and duration of which, historians differ greatly in their accounts. Several ancient writers, in particular Ctesias and Diodorus Siculus, have affirmed that the Assyrian monarchy, under Ninus and Semiramis, comprehended the greater part of the known world. Had this been the case, it is not likely that Homer and Herodotus would have omitted a fact so remarkable. The sacred records intimate that none of the ancient states or kingdoms were of considerable extent; for neither Chedorlaomer nor any of the neighbouring princes were tributary or subject to Assyria; and we find nothing of the greatness or power of this kingdom in the history of the judges and succeeding kings of Israel, though the latter kingdom was oppressed and enslaved by many different powers in that period. It is highly probable, therefore, that Assyria was originally of small extent. According to Ptolemy, it was bounded on the north by Armenia major; on the west by the Tigris; on the south by Susiana; and on the east by Media.

The revolutions of the Assyrian monarchy were numerous. Its founder was Ashur, the second son of Shem, who went out of Shinar, either by the appointment of Nimrod, or to elude the fury of that tyrant; conducted a large body of adventurers into Assyria, and laid the foundation of Nineveh, Gen. x. 11. These events happened not long after Nimrod had established the Chaldean monarchy, and fixed his residence at Babylon. The Persian historians suppose, that the kings of Persia of the first dynasty were the same with the kings of Assyria, of whom Zohath, or Nimrod, was the founder of Babel. Herbelot Orient. Bib. v. Bagdad. It does not, however, appear, that Nimrod reigned in Assyria. The kingdoms of Babylon and Assyria were originally distinct and separate, Micah v. 6; and in this state they remained until Ninus conquered Babylon, and made it tributary to the Assyrian empire. Ninus, the successor of Ashur, Gen. x. 11, Diod. Sic. lib. 1, seized on Chaldea, after the death of Nimrod, and united the kingdoms of Assyria and Babylon. This prince is said to have subdued Asia, Persia, Media, Egypt, &c. If he did so, the effects of his conquests were of short duration; for in the days of Abraham we do not find that any of the neighbouring kingdoms were subject to Assyria. He was succeeded by Semiramis, a princess of an heroic mind; bold, enterprising, fortunate; but of whom many fabulous things have been recorded. It appears, however, that there were two princesses of the same name, who flourished at very different periods. One of them was the consort of Ninus; and the other lived five generations before Nitocris, queen of Nebuchadnezzar, Euseb. Chron. p. 58. Herod. lib. 1, cap. 184. This fact has not been attended to by many writers. Whether there was an uninterrupted series of kings from Ninus to Sardanapalus, or not, is still a question. Some suspicion has arisen, that the list which Ctesias has given of the Assyrian kings is not genuine; for many names in it are of Persian, Egyptian, and Grecian extraction. Nothing memorable has been recorded concerning the successors of Ninus and Semiramis. Of that effeminate race of princes it is barely said, that they ascended the throne, lived in indolence, and died in their palaces at Nineveh. Diodorus relates, that in the reign of Teutames, the Assyrians solicited by Priam their vassal, sent to the Trojans a supply of 20,000 foot and 200 chariots, under the command of Memnon, son of Tithonus, president of Persia. But this is not confirmed by any other author. Sardanapalus was the last, and by all accounts the most effeminate of the ancient Assyrian kings. Historians have unanimously reprobated his character; and Lord Byron has made it the foundation of a beautiful poem. We have only to add, that Arbaces, governor of Media, taking advantage of Sardanapalus's indolence, withdrew his allegiance and rebelled against him. He was encouraged in this revolt by the advice and assistance of Belesis, a Chaldean priest, who engaged the Babylonians to follow the example of the Medes. These powerful provinces, aided by the Persians and other allies, who despised the effeminacy, or dreaded the tyranny of their Assyrian lords, attacked the empire on all sides. Their most vigorous efforts were, in the beginning, unsuccessful. Firm and determined, however, in their opposition, they at length prevailed; defeated the Assyrian army, besieged Sardanapalus in his capital, which they demolished, and became masters of the empire A. A. C. 821. The Assyrian empire was now divided into three kingdoms, viz. the Median, Assyrian, and Babylonian. Arbaces retained the supreme power and authority, and fixed his residence at Ecbatana in Media. He nominated governors in Assyria and Babylon, who were honored with the title of kings, while they remained subject and tributary to the Median monarchs. Belesis received the government of Babylon as the reward of his services; and Phul was entrusted with that of Assyria. The Assyrian governor gradually enlarged the boundaries of his kingdom, and was succeeded by Tiglath-pileser, Salmanasar, and Sennacherib, who asserted and maintained their independency. After the death of Esar-haddon, the brother and successor of Sennacherib, the kingdom of Assyria was split, and annexed to the kingdoms of Media and Babylon. Several tributary princes afterwards reigned in Nineveh; but no particular account of them is found in the annals of ancient nations. We hear no more of the kings of Assyria, but of those of Babylon. Cyaxares, king of Media, assisted Nebuchadnezzar, king of Babylon, in the siege of Nineveh, which they took and destroyed, A. A. C. 606.

The most remarkable provinces of Assyria

were, 1. Arapachitis, bordering on Armenia. 2. Corduene, a mountainous territory, the ancient residence of the Carduchi, mentioned by Xenophon in his Anabasis. 3. Adiabene, in Strabo's time, the most considerable province in Assyria. 4. Calachene, lying between the mountains of Armenia and Zabus Major. 5. Apolloniatis, watered by the river Gorgus. 6. Settacene, by some reckoned a portion of Babylonia. 7. Chalonitis, separated from Media by a branch of Mount Taurus.

ASSYRIAN LETTERS, a denomination given by several Rabbins and Talmudists, to the characters of the present Hebrew alphabet, as supposing them to have been borrowed from the Assyrians during the Jewish captivity in Babylon.

ASTA, an inland town of Liguria, a Roman colony, on the river Tanarus, now called Asti.

ASTA, or ASTA REGIA, a town of Bœtica, situated at the mouth of the Bætis, which was choked up with mud, north of Cadiz, and sixteen miles distant from its port. Its ruins show its former greatness. Its name is Phœnician, denoting a frith or arm of the sea. It is said to be the same with the present Xeres.

ASTABAT, a town of Armenia, in Asia, three miles from the river Aras, and twelve south of Nakshivan. The land about it is excellent, and produces very good wine.

ASTÆUS, a species of the crab insect.

ASTAKILLOS, a denomination given by Paracelsus to a malignant gangrenous ulcer in the legs, occasioned by a mercurial salt in the blood. It is also called by him araneus, and ulcus araneum, the spider's ulcer.

ASTANDA, in antiquity, a royal courtier or messenger; the same with Angarus. Darius king of Persia, is said by Plutarch, in his book on the fortunes of Alexander, to have formerly been an astanda.

ASTARILÆ, ASTARITÆ, or ASTAROTHITES, a name given to those Jews who worshipped Ashtaroth.

ASTARTE, in ancient geography, a city on the other side Jordan; one of the names of Rabbah Ammon, in Arabia Petræa.

ASTARTE, in pagan mythology. See ASHTAROTH. On a medal of Cæsarea Palestina, Astarte is represented as in the annexed figure, in a short habit, crowned with battlements, holding the head of Osiris in her right hand, and a staff in her left, inscription COL*onia* P*rima* F*elix* AUG*usta* F*lavia* C*ommodiana*, &c.

ASTATE'. See ESTATE.

> The worlde stante ever upon debate,
> So maie be siker none *astate*,
> Now here, now there, now to, now fro,
> Now up, now down, the world goth so,
> And ever hath done, and ever shall.
> *Gower. Con. A. The Prologue.*

ASTATI, in the ninth century, the followers of one Sergius, who renewed the errors of the Manichees. They prevailed much under the emperor Nicephorus; but his successor, Michael Curopalates, curbed them with very severe laws.

ASTEEP'ING. In steeping. See STEEP.

> Where Perah's flowers
> Perfume proud Babel's bowers,
> And paint her wall:
> There we lay'd *asteeping*
> Our eyes in endless weeping,
> For Sion's fall.
> *P. Fletcher's Poems*, p. 163.

ASTEISM, in rhetoric, a pleasant kind of irony, or handsome way of deriding another. Such, *e. g.* is that of Virgil:

Qui Bavium non odit, amet tua carmina, Mavi, &c

ASTELL (Mary) was the daughter of an opulent merchant at Newcastle-upon-Tyne, where she was born about 1668. She was educated in a manner suitable to her station; and amongst other accomplishments was mistress of the French, and had some knowledge of the Latin tongue. Her uncle, a clergyman, observing in her marks of a promising genius, took her under his tuition, and taught her mathematics, logic, and philosophy. She left the place of her nativity when she was about twenty years of age, and spent the remaining part of her life in London and at Chelsea. Here she pursued her studies with great assiduity, made great proficiency in the above-mentioned sciences, and acquired a more complete knowledge of the classics. Among these Seneca, Epictetus, Hierocles, Antoninus, Tully, Plato, and Xenophon were her favorites. She wrote, 1. A Serious Proposal to the Ladies. 2. An Essay in Defence of the Female Sex. 3. Letters concerning the Love of God. 4. Essays upon Marriage, Crosses in Love, and Friendship. 5. Moderation truly stated. 6. The Christian Religion, as professed by a daughter of the Church of England. 7. Bart'lemey Fair, or an Enquiry after wit; and other works. She died in 1731, aged sixty-three, and was buried at Chelsea.

ASTENA, a genus of worms of the mollusca order, in the Linnæan system.

ASTER, in ancient pharmacy, a kind of medicine, invented by Andromachus, against defluxions and divers pains.

ASTER, in botany, starwort, a genus of the polygamia superflua order, and syngenesia class of plants; ranking in the natural method under the forty-ninth order, compositæ discoides. The receptacle is naked; the pappus simple; the rays of the corolla ten; and the calyx imbricated. There are above thirty species. All of them may be raised from seed sown either in autumn or spring: but the greater part being perennial plants, and increasing greatly at the roots, are generally propagated by parting their roots early in the spring. They will grow in almost any soil or situation; and the larger sorts increase very fast. They grow best in the shade: the lower kinds do not run so much at the root, but should be taken up and transplanted every other year; which will make them produce much fairer flowers. Some few sorts which are natives of warm climates, will require artificial heat to raise them, if not to preserve them.

ASTER, in mineralogy, a species of Samian earth.

ASTERABAD, a small province of Persia, bounded on the west by the Caspian sea, on the

south by the districts of Damgan and Bistan, and on the north and east by the river Ashor. This province is the ancient Hyrcania, and the paternal estate of the present king of Persia, as chief of the tribe Kajar, or Kujur, which has entire possession of it. The capital is situated on the south-east shore of the Caspian sea, at the mouth of the river Aster, or Ester. It was destroyed by Tamerlane, and is now governed by a descendant of the reigning family of Persia. 300 miles N. N. E. of Ispahan. Long. 54° E., lat. 36° 44′ N.

ASTERAC, or Esterac, a ci-devant district of France, in Armagnac, now included in the department of Gers. It is fertile and populous.

ASTERIA, a gem, sometimes called the cat's eye, or oculus felis. It is a very singular and beautiful stone, and somewhat approaches to the nature of the opal, in having a bright included color, which seems to be lodged deep in the body of the stone, and shifts about, as it is moved, in various directions: but it differs from the opal in all other particulars, especially in its want of the great variety of colors seen in that gem, and in its superior hardness. It is usually found between the size of a pea and the breadth of a sixpence; is almost always of a semicircular form, broad and flat at the bottom, and rounded and convex at the top; and is naturally smooth and polished. It has only two colors, a pale brown and a white; the brown seeming the ground, and the white playing about in it, as the fire color in the opal. It is considerably hard, and will take a fine polish, but is usually worn with its native shape and smoothness. It is found in the East and West Indies, and in Europe. The island of Borneo affords some very fine ones, but they are usually small; they are very common in the sands of rivers in New Spain; and in Bohemia they are often found immersed in the same masses of jasper with the opal.

Asteria, an extraneous fossil, called in English the star-stone. These fossils are small, short, angular, or sulcated columns, between one and two inches long, and seldom above a third of an inch in diameter: composed of several regular joints; when separated, each resembles a radiated star. They are, not without reason, supposed to be a part of some sea-fish petrified, probably the asterias or sea-star. The asteria is also called astrites, astroites, and asteriscus. They may be reduced to two kinds: those whose whole bodies make the form of a star; and those which in the whole are irregular, but are adorned as it were with constellations in the parts. The asterias spoken of by the ancients appears to be of this latter kind. The quality of moving in vinegar, as if animated, is scarcely perceivable in the astrites, but is signal in the asteria. The former must be broken in small pieces before it will move; but the latter will move, not only in a whole joint, but in two or three knit together. The curious frequently meet with these stones in many parts of England.

Asteria, in zoology, a name by which some authors have called the falco palumbarius, or gos-hawk. See Falco.

ASTERIAS, star-fish, or sea-star, in zoology, a genus of insects of the order of vermes mollusca. It has a depressed body, covered with a coriaceous coat; is composed of five or more segments, running out from a central part, and furnished with numerous tentacula; and has the mouth in the centre. The tentacula resemble the horns of snails, but serve the animal to walk with. They are capable of being contracted or shortened: and it is only at the creatures moving that they are seen of their full length; at other times, no part of them is seen but the extremity of each, which is formed like a sort of button, being somewhat larger than the rest of the horn. Aristotle and Pliny called this genus αστηρ, and stella marina, from their resemblance to the pictured form of the stars of heaven; and they asserted that they were so exceedingly hot, as instantly to consume whatsoever they touched! The fossil world has been greatly enriched by the fragments and remains of the several pieces of star-fish which have been converted into stones. See Asteria. There are many species of this genus: some of twelve, thirteen, and even fourteen rays. Most of them are found in our seas. We enumerate the principal: 1. A. caput meducæ, or arborescent sea-star, having five rays issuing from an angular body; the rays divided into innumerable branches, growing slender as they recede from the base. These the animal, in swimming, spreads like a net; and when he perceives any prey within them, draws them in again. It is called by some the Magellanic star-fish, and basket-fish. 2. A. clathatra, or cancellated sea-star, with five short thick rays, hirsute beneath, cancellated above, is found on our coasts, but is rare. 3. A. decacnemos having ten very slender rays, with numbers of long beards on the sides; the body small, and surrounded beneath with ten filiform rays. It inhabits the western coasts of Scotland. 4. A. glacialis, with five rays, depressed, round at the base, yellow, and having a round striated operculum on the back, is the most common; it feeds on oysters, and is very destructive to the beds. 5. A. hispida, with five rays, broad, angulated at top, and rough, with short bristles, is of a brown color, and found about Anglesea. 6. A. oculata, with five smooth rays, dotted or punctured, is of a fine purple color, also found about Anglesea. 7. A. placenta, with five very broad and membraneous rays, extremely thin and flat, found about Weymouth. 8. A. spherulata, with a pentagonal indented body; a small globular head between the base of each ray; the rays slender, jointed, taper, and hirsute on their sides; found off Anglesea.

Asterias, in ornithology, the ancient name of the bittern. See Ardea.

ASTERION, in astronomy, one of the canes venatici.

ASTERISCUS, in botany, asteriodes buphthalmum, the ox eye.

AS'TERISK, } Gr. Αστερισκος, a diminutive
As'terism. } of αστηρ, a star. Asterisms denote a number of stars, a constellation. Asterisk is a character of reference used in printing, resembling a small star.

Dwell particularly on passages with an *asterism*, for the observations which follow such a note, will give you a clear light. *Dryden's Dufresnoy.*

Poetry had filled the skies with *asterisms*, and histories belonging to them; and then astrology devises the feigned virtues and influences of each.

Bentley's Sermons.

He also published the translation of the Septuagint by itself; having first compared it with the Hebrew, and noted by *asterisks* what was defective, and by obelisks what was redundant. *Grew.*

ASTERIUS, or ASTURIUS, a Roman consul, who lived about A. D. 449. He wrote A Conference on the Old and New Testament, in Latin verse, which is extant, and in which each strophe contains, in the first verse, an historical fact in the Old Testament, and in the second an application of that fact to some point in the New.

ASTERN. On the stern. See STERN.

Having left this strait *astern*, we seemed to be come out of a river of two leagues broad, unto a large and main sea.

The World encompassed by Sir F Drake, 1578.

The galley gives her side, and turns her prow,
While those *astern* descending down the steep,
Through gaping ways behold the boiling deep.

Dryden.

But at seven in the evening, finding we did not near the chase, and that the Wager was very far *astern*, we shortened sail, and made a signal for the cruizers to join the squadron. *Anson's Voyage*, p. 50.

ASTERN is used to signify any thing at some distance behind the ship; being the opposite of a-head, which signifies the space before her. See AHEAD.

ASTEROPÆUS, a Trojan hero, who fought with Achilles, in single combat, and proved him not invulnerable, by wounding him in the right arm; notwithstanding which Achilles slew him.

ASTEROPHYTON, in natural history, a kind of fish composed of a great number of cylindric rays, each branching out into several others, so as to represent the branched stalks of a very intricate shrub.

ASTEROPODIUM, a kind of extraneous fossil, of the same substance with the asteriæ or star-stones, to which they serve as a base. See ASTERIA and STAR-STONE.

ASTESAN, the ancient county of Asti, a district of Upper Italy, bounded by Chieri and Carmagnola on the west, by the Vercellois on the north and east, and by the marquisate of Gorzegno on the south. It is a fruitful and populous territory, about twenty-five miles long and ten broad, and belongs to the house of Savoy. It produces excellent wines, and exports to various parts of Italy large quantities of olives.

ASTETE'S ISLAND, an island to the north-west of the gulf of Carpentaria, New Holland, containing some traces of iron ore, and well wooded.

ASTHMA, a frequent, difficult, and short respiration, joined with a hissing sound and a cough, especially in the night-time, and when the body is in a prone posture; because then the contents of the lower belly bear so against the diaphragm, as to lessen the capacity of the breast, whereby the lungs have less room to move. See MEDICINE.

ASTI, a city of Montserrat in Italy, capital of the county. It has a bishop's see; is well fortified with strong walls and deep ditches: and is divided into the city, borough, citadel, and castle. There are a great many churches, convents, and other handsome buildings in it. It is seated on the Tanaro, twenty-four miles east of Turin. Population 22,000. The inhabitants carry on a considerable trade in corn, wine, and silk, which is promoted by the situation of the town on the high-road from Alessandria to Turin.

ASTIGI, in ancient geography, a colony, and conventus juridicus, of Bœtica, situated on the Singulus, which falls into the Bætis; called also Colonia Astigitana, and Augusta Firma; now Ecya, midway between Seville and Corduba.

ASTIPULATE, } To make an agreement.
ASTIPULATION. } See STIPULATE.

I do by my royal authority, confirm to persons of monastical religion, and by the consent and *astipulation* of my princes and peers do establish and consign to them that monastery.

Bp. Hall's Polemical Works, p. 187.

Shortly, all, but a hateful Epicurus, have *astipulated* to this truth. *Id. Devotional Works.*

ASTIPULATOR, among the Roman Catholics, he by whose consent and leave a nun takes the religious habit.

ASTLE (Thomas), an English antiquary, was the son of a farmer in Staffordshire. After he had received a liberal education, Mr. Grenville took him under his patronage, and about 1763 gave him a place along with Sir Joseph Ayloffe and Dr. Ducarel, in the superintendance of the Westminster records. In 1766 he was chosen to conduct the printing of the ancient records of parliament; and in 1775 was appointed principal clerk in the record office in the Tower; from which, on the death of Sir John Shelly, he succeeded to the office of keeper of the records. He died in December 1803, and was the author of many curious papers in the volumes of the Archæologia; also of a work entitled Origin and Progress of Writing, as well hieroglyphic as elementary; which was first printed in 1784, 4to, and again in 1803.

ASTLEY (John), a native of Wem in Shropshire, though he studied painting under the same master with Sir Joshua Reynolds, is more memorable as a favorite of fortune, than as a limner. His best pictures are copies of the Bentivoglio's, Titian's Venus, &c. Lady Daniel, having sat to him for her picture, within a week after gave him the original, with the estate of Duckenfield, worth £5000 a year. He died in 1787.

ASTLEY (Philip), the founder of the royal amphitheatre near Westminster Bridge, was born at Newcastle-under-line in 1742, and bred a cabinet-maker. In 1759 he enlisted in the Light Horse, and served seven years in Germany, where he acquired the reputation of a good soldier. On his return home, he began to exhibit equestrian performances; and in 1780 erected a building which he called the amphitheatre riding house, for which he subsequently procured a license. In 1794 Mr. Astley went to the continent as a volunteer in the army. This campaign led to the publication of his Descriptive and Historical Account of the places now the theatre of war in the Low Countries, with plans of fortifications; London, 1794, 8vo; and Remarks on the Profession and Duty of a Soldier. Mr. Astley built amphitheatres at Dublin and at Paris, and the

Olympic Pavilion near the Strand. He closed an active and diversified life at Paris, October 20th, 1814, at the age of seventy-two. Another work of his is entitled A System of Equestrian Education, exhibiting the Beauties and Defects of the Horse, 1800, 4to.

ASTOMI, in anthropology, a people feigned to be without mouths. Pliny speaks of a nation of Astomi in India, who lived only by the smell or effluvia of bodies taken in by the nose!

ASTON (Sir Arthur), a commander in the service of Charles I. was at the head of the dragoons at the battle of Edgehill, and three times defeated the earl of Essex. He was successively governor of Reading and Oxford. He had the misfortune to break one of his legs in such a manner as to make amputation necessary; and, serving in Ireland after the death of the king, when Cromwell took Drogheda, where Aston was governor, his brains were beaten out with his wooden leg.

ASTON (Sir Thomas), of an ancient family in Cheshire, was created baronet in 1628, and appointed high sheriff of Cheshire in 1635. He raised a troop of horse for king Charles I., but was defeated and wounded in the vicinity of Nantwich in 1642. He was afterwards made prisoner, and carried to Stafford; and, while endeavouring to make his escape, a soldier struck him on the head, which, with other wounds he had received, brought on a fever, which ended in his death, in 1643. Sir Thomas was author of, 1. A Remonstrance against Presbytery, 1641, 4to; 2. A Short Survey of the Presbyterian Discipline; 3. Brief Review of the Institution, Succession, and Jurisdiction of Bishops.

ASTON'E, ASTON'Y, ASTON'YING, ASTON'IEDNESS, ASTON'ISH, ASTON'ISHEDLY, ASTON'ISHING, ASTON'ISHINGLY, ASTON'ISHMENT, ASTOUN'D. Ang.-Sax. stunian, to stun. Old Fr. *estonne*, to amaze, to excite wonder, surprise; to strike as with thunder, startle, stupify, confound, benumb; to stonny, or, as we say in modern phrase, to petrify. Astound is from the same root, and of a corresponding signification.

But netheles how that it wende
He drad hym of his owne sonne
That maketh hym well the more *astone*.
Gower. Con. A. book vi.

And with this word she fell to ground
Aswoune, and there she lay *astound*.
Id. ib. l. iv.

And anoon all the puple seynge Jhesus was *astonyed* and thei dredden, and thei rennynge gretten him. *Wiclif. Mark*, chap. ix.

Be *astonyshed* (O ye heauēs), be afrayde, and abashed at soch a thinge, sayethe the Lord. For my people doue two euels. *Bible*, 1539. *Jeremy*, c. ii.

Her looks did so *astonish* me,
And set my heart a quaking;
Like stag that gaz'd, I was amaz'd,
And in a stranger taking.
Belchier, in Ellis, vol. iii.

These thoughts may startle well, but not *astound*,
The virtuous mind; that ever walks, attended
By a strong siding champion, conscience. *Milton.*

Now they lie
Groveling and prostrate on yon lake of fire,
As we ere while, *astounded* and amaz'd,
No wonder, fall'n such a pernicious height.
Milton. Paradise Lost, b. i.

Princes, potentates,
Warriors, the flow'r of heaven, once yours, now lost,
If such *astonishment* as this can seize
Immortal spirits. *Id.*

But all sate mute,
Pondering the danger with deep thoughts; and each
In other's countenance read his own dismay
Astonisht. *Id.* b. ii.

As when some peasant in a bushy brake,
Has with unwary footing pressed a snake;
He starts aside, *astonish'd*, when he spies
His rising crest, blue neck, and rolling eyes.
Dryden's Virgil.

The palaces of Peru and Mexico were certainly mean and incommodious habitations, if compared to the houses of European monarchs; yet who could forbear to view them with *astonishment*, who remembered that they were built without the use of iron.
Johnson.

Whence many wearied e'er they had o'erpast
The middle stream (for they in vain have tried)
Again return'd *astounded* and aghast,
No one regardful look would ever backward cast.
Gilbert West.

A genius, universal as his theme,
Astonishing as chaos. *Thomson.*

At first, heard solemn thro' the verge of heaven
The tempest growls; but as it nearer comes,
And rolls its awful burden on the wind,
The lightning's flash a larger curve, and more
The noise *astounds*. *Thomson's Seasons.*

Unmanly dread invades
The French *astony'd*. *J. Philips.*

Astonishment is that state of the soul in which all its motions are suspended, with some degree of horror.
Burke on the Sublime and Beautiful.

A character so exalted, so strenuous, so various, so authoritative, *astonished* a corrupt age, and the treasury trembled at the name of Pitt, through all her classes of venality.
Grattan's Character of Lord Chatham.

ASTORCHA, in botany, a name given by some botanists to the stoechas.

ASTORGA, an ancient city of Spain, in the kingdom of Leon, with a bishop's see, seated on the river Tuerto, and well fortified. It stands in a most agreeable plain, about 160 miles north-west of Madrid. It is now the chief place in a small marquisate, the castle of which it contains. In its territory lies the lake of Sanabria, through which the Tuerto passes with such rapidity as to agitate the whole surface.

ASTRÆA, in astronomy, a name of the sign Virgo, by others called Erigone, and sometimes Isis.

ASTRÆA, in mythology, the goddess of justice, and daughter of Jupiter by Themis, or, as others say, by Nemesis, the goddess of vengeance. The poets feign that Astræa quitted heaven to reside on earth, in the golden age; but, growing weary of the iniquities of mankind, she left the earth, and returned to heaven, where she commenced a constellation of stars, and from her orb still looks down on the ways of men.

ASTRAGAL, in architecture, a little round moulding, which in the orders surrounds the top of the shaft or body of the column. Its etymo-

logy is derived from its resemblance to the bone of the heel, called astragalos. It is also called the talon and tondino; it is used at the bottoms as well as the tops of columns, and on other occasions; it properly represents a ring, on whatever part of a column it is placed; and the original idea of it was that of a circle of iron put round the trunk of a tree used to support an edifice, to prevent its splitting. The astragal is often cut into beads and berries, and is used in the ornamented entablatures to separate the several faces of the architrave. See ARCHITECTURE.

ASTRAGAL, in gunnery, a round moulding encompassing a cannon, about half a foot from its mouth.

ASTRAGALOIDES, in botany, the phaca of Linnæus.

ASTRAGALOMANCY; from *αστραγαλος*, and *μαντεια*, divination; a species of divination performed by throwing small pieces, with marks corresponding to the letters of the alphabet; the accidental disposition of which formed the answer required. This kind of divination was practised in a temple of Hercules at Achaia.

ASTRAGALOTE, in natural history, a species of fossile alum, thus called from its resembling a talus, or ankle-bone; whence it is also denominated talare.

ASTRAGALUS, in anatomy, the bone of the heel. See ANATOMY.

ASTRAGALUS, in botany, milk-vetch, or liquorice vetch; a genus of the decandria order, and diadelphia class of plants; ranking in the natural method under the thirty-second order, papilionaceæ, the pod is gibbous and bilocular. Of this genus there are thirty-nine species. 1. A. communis, the common species, grows wild upon dry uncultivated places, and is often recommended by Mr. Anderson as proper food for cattle. 2. A. tragacantha, a thorny bush, growing in Crete, Asia, and Greece, which yields the gum tragacanth. This is of so strong a body, that a dram of it will give a pint of water the consistence of a syrup, which a whole ounce of gum Arabic is scarce sufficient to do. Hence its use for forming troches and the like purposes, in preference to the other gums.

ASTRAKHAN, a city and government of the Russian empire, on the shores of the Caspian, anciently an independent Tàtarian sovereignty, but reduced to a Russian province by the Tzar Ivan Vasiliovich in 1554. It forms a distinct province, named after its principal city; having been separated from that of Caucasus, in which it was formerly included. It is bounded by the governments of Caucasus, Saratov, Orenburg, the country of the Kirgiz Tartars, the Caspian Sea, and the ci-devant Persian provinces of Dághistàn and Lergistàn; and contains 12,568 square geographical miles. The number of its inhabitants is from 300,000 to 400,000. Its extent from east to west is about 600 geographical miles, and from north to south about 520. The climate is rather warm, the thermometer rising in the summer to 158° (Fahrenheit); but the nights are cold, and the dew very copious. The ice is usually strong enough to bear at the end of November, and is not melted again till February. This is followed by violent storms; but spring soon advances, the ground is covered with flowers, and the whole face of nature changed. The summer is remarkably dry. This government is separated from that of Kazan and the Kozaks of the Ural, by a barren branch of the Uralian chain, which stretches from north to south, and is the only line of hills in this province. The rest of the government is one continued level. The principal rivers, besides the Volga and Ural, are the Akhtuba, running parallel with the Volga, the Manich, the great and little Uzen, the Kuban, the Kuma, lost in the summer months in the sands, the Terek, the Malka, and the Sula. The air in the Steppes is said to be very unhealthy. At a distance from the stream the soil becomes salt and barren, and is covered with drifting sand. There are several salt lakes, such as the Bogdo, Basinskoë, Graznoë, Kobilikha, &c.

On the banks of the Volga rhubarb and liquorice are plentiful, and the extract from the root of the latter is prepared in considerable quantities in the city of Astrakhan. The sea-rose, found near the mouth of the Volga, is here considered as sacred and nutritious. Its flowers have a fragrant smell, and give an essential water of the scent of amber. The shrubs of the Steppes are cherries, sloes, dwarf almonds, and capers. Near the river there are the willow, alder, birch, ash, poplar, elm, and oak; the beech also on the Kuban; but no large woods. The fruit trees are Tatarian mulberries, cherries, apples, pears, plums, apricots, peaches, quinces, and vines; and on the latter there are also figs, almonds, wild olives, Spanish chestnuts, pomegranates, and Cornelian cherries (Cornus mas), which, when pickled, taste like olives. Silk, tobacco, and cotton are plentiful; and the gardens produce all the common roots and herbs. The pasturage is excellent, and much cattle is reared. Sea and rock-salt, natron, epsom-salt, salt-petre-earth, bitumen, and mineral pitch, are also an abundant source of wealth to Astrakhan.

The population of the province is composed of a great number of different nations; Russians, Kozaks, Tartars, Kalmuks, Indians, Persians, Armenians, &c. Generally the military, public officers, merchants, mechanics, and other citizens, are Russians. The garrisons on the Ural consist of Kozaks, derived from those of the Don, who choose their own officers, except their commander, the hetman, or ataman, who is appointed by the Russian government. The Tartars are, excepting a small number, nomad tribes, continually encamped, consisting of about 9000 families. The Kalmuks, about 12,000 families, are of the Derbet tribe, and encamp between the Volga, Don, and Kuma. There are also Armenians, Greeks, Georgians (Gruzinians), Bukharians, Khivinzians, and Hindoos, in considerable numbers, constantly inhabiting the city, to say nothing of the Europeans who are generally to be found there. Some colonies, established on the Terek and Kuma in 1781, cultivate grain, gardens, and vineyards, and produce a considerable quantity of silk. The number of their villages amounted to fifty-three in 1796.

ASTRAKHAN, the capital of the above government, (called originally Hàje Terkhàn, the

Giterchan, or Ginterchan, of the middle ages), is situated in E. long. 48° 2′ 15″, N. lat. 46° 21′ 12″, and is one of the most populous and important cities, ranking as the third town, perhaps, of the Russian empire. It contains nearly 70,000 inhabitants. It stands on a hill, in a long narrow island of the Volga, about thirty miles from its entrance into the Caspian, surrounded by swamps, which in spring are very unhealthy. The town itself, without including the suburbs, is from six to eight miles in circumference. The houses are built principally of brick and sand-stone. Here is an old Tatar castle, or kreml, and the Beloï-Gorod (white tower), built by the tzar, Michael Feodorovich, now in ruins; a cathedral, archbishop's palace, public offices, main guard, arsenal, and powder magazine. Belgorod, which adjoins the kreml, on the same hill, is 2510 feet long, 1440 feet broad, and 7110 feet in circumference. The city has four gates, and some ruined walls. The streets are ill paved, and much exposed to inundations. Between the kreml and the canal, on the Volga, is the dock-yard, on the other side of which are the Tatarian and Armenian suburbs (slobods), and barracks for the troops. The exchange, where ships from the Caspian unlade and land their goods, is not far from St. Nicolas's Gate, and opposite to it is the haven for vessels coming down the river. Within the suburbs are about 100 vineyards, thirty of which belong to the crown; a school for the artillery, a bank, and court of justice, in what was formerly the Troïtzkoï convent; and, in the Belograd, the Spasso-preobrashenski convent, two parish churches, two hospitals, and a bázàr for the use of the Armenians and Hindoos.

The variety of nations and religions in Astrakhan is manifested by the number and difference of the places of worship. The total of them is fifty-seven: twenty-three Russian churches of the Greek communion; twenty-seven Tatarian mosques, churches, and temples; four Armenian, two Roman Catholic, one Lutheran, and one Hindoo temple. There is also a handsome hospital dedicated to St. Paul, and six monasteries; several dyeing-houses, brick-fields, tallow-candle manufactories, one iron-foundry, and looms for weaving linen, veils, and sashes. The morocco leather manufactured here is most esteemed, next to the Turkish; especially the red. There is also an establishment here for rearing silk-worms, and a botanic garden. European goods are brought either by water from Petersburgh, or, on sledges, by land from Moscow, and are shipped across the Caspian, or conveyed to Mozdok, in Mount Caucasus. The merchants engaged in this trade employ 250 vessels of different tonnage. More than half of the whole trade carried on is in the hands of the Armenians. Many of the Russian merchants employ their vessels in trading voyages to Persia, Khiva, or Bukhárà, or carrying stores to Kizliær, and salt, for the crown, to the towns on the Volga. The Hindoo merchants generally quit their native country at an early age, setting out with a small capital, which they soon increase by trade on their way through Tatary and Persia; and make enormous profits by letting the Tatars of Astrakhan have their goods on credit; so that the latter are always deeply in their debt.

The imports from Persia and Bukhárà consist of raw silk, about 120,000 lbs. yearly, wool, dyed woollens, madder, galls, morocco leather, chintzes, dyed linens, silks, gauzes, small carpets, counterpanes, frankincense, bezoar, naphtha, rice, deer-skins, lamb-skins, Circassian cloth, tulups (pelisses), mountain-honey, tobacco, cotton gowns, Persian peas, dried fruits, almonds, figs, pomegranates, olives, oil, saffron, dried peaches, and spices. The exports consist almost entirely of foreign manufactures; such as velvet, cochineal, satin, plush, linen, and other woven articles, sugar, Russia-leather, iron, dyeing substances, glass, coral, steel and iron wares, metal utensils, wrought gold and silver, wax, soap, trinkets, alum, quick-silver, vitriol, sal-ammoniac, &c. Caravans often arrive by land at Astrakhan from Bukhárà and Khiva. The Indian trade alone is from 6 to 700,000 roubles (£120 to 140,000) annually. The silk-manufactures are said to employ from 3 to 400,000 (£60 to 80,000). The supplies sent to the Caucasian lines along the Terek, from 4 to 500,000 (£100 to 120,000). The prices of all internal produce are low. Little is known concerning the origin of Astrakhan or of its condition before the thirteenth century, when William de Rubruguis found it a village without any fortifications; but, at the close of that century, it was a considerable emporium for the trade with India and China; and completely ruined by Timur. It was still a mere village when Josaphat Barbaro saw it in the fifteenth century; but Ambrosio Contareni, the Venetian ambassador, in the latter end of that century, found a considerable trade in rice and silk carried on there. The conquest of it, by the tzar Ivan Vasiliovich, in 1554, was therefore very advantageous to Russia, as it gave her the command not only of the Volga, but also of the Caspian, an advantage which she has not neglected to improve.

ASTRALISH, among miners, is the ore of gold in its first state.

ASTRANTIA, Masterwort, in botany, a genus of the digynia order, and the pentandria class of plants; ranking in the natural method under the forty-fifth order, umbellatæ. The involucrum is lanceolated, open, equal, and colored. The species are two: 1. A. major. 2. A. minor, both natives of the Alps, and possessing no remarkable properties.

ASTRAPÆA, in natural history, a name given by the ancients to a stone, since called, improperly, astrapia, and by some astrapias. It was of a blue, or blackish ore, with white variegations, running in the form of waves and clouds. Some specimens of the Persian lapis lazuli are of this kind, but they are rare.

ASTRARII, in writers of the middle age, the same with mansionarii, those who live in the house or family, at the time when a person dies.

ASTRARIUS Hæres; from astre, old French, a hearth; is used in our old writers, where the ancestor, by conveyance, hath set his heirs apparent, and his family, in a house, in his lifetime.

ASTRAY'. According to Tooke, the past part. of the Ang.-Sax. verb strægan, to stray, to scatter.

First every day, beseech thy God on knee,
So to direct thy stagg'ring steppes alway;
That he which every secrete thought doth see,
May holde thee in, when thou wouldst goe *astray*.
Gascoigne.

You labour may
To lead *astray*,
The heart that constant shall remain,
And I the while
Will sit and smile,
To see you spend your time in vain.
George Wither, in Ellis, v. i.

And darkness and doubt are now flying away,
No longer I roam in conjecture forlorn.
So breaks on the traveller, faint, and *astray*,
The bright and the balmy effulgence of morn.
Beattie's Hermit.

ASTRICT', *v.* & *adj.* } *Astringo, astrictum, astringere*, to contract. To make strait or narrow, to heighten or draw close, to bind; opposed to relax.
ASTRIC'TION,
ASTRIC'TIVE,
ASTRIN'GE,
ASTRIN'GENTLY,
ASTRIN'GENT, *n.* & *adj.*

Tears are caused by a contraction of the spirits of the brain; which contraction, by consequence, *astringeth* the moisture of the brain, and thereby sendeth tears into the eyes. *Bacon.*

This virtue requireth an *astriction*; but such an *astriction*, as is not grateful to the body: for a pleasing *astriction* doth rather bind in the nerves, than expel them; and therefore such *astriction* is found in things of a barsh taste. *Id.*

The juice is very *astringent*, and therefore of slow motion. *Id. Natural History.*

What diminisheth sensible perspiration, encreaseth the insensible; for that reason, a strengthening and *astringent* diet often conduceth to this purpose.
Arbuthnot on Aliments.

The solid parts were to be relaxed or *astricted*, as they let the humours pass, either in too small or too great quantities. *Id.*

Lenitive substances are proper for dry atrabilarian constitutions; who are subject to *astriction* of the belly, and the piles. *Id. on Diet.*

Acid, acrid, austere and bitter substances, by their *astringency*, create horrour; that is, stimulate the fibres. *Id.*

Astringent medicines are binding, which act by the asperity of their particles; whereby they corrugate the membranes, and make them draw up closer.
Quincy.

ASTRICTION, in law. See THIRLAGE.

ASTRICTION, in medicines, the operation of astringent medicines.

ASTRICUS LAPIS, in natural history, a kind of figured stone, broken or cut from the enastros, after the same manner as the trochitæ, from the entrochi.

ASTRID'E, } On stride, on straddle. See
ASTRAD'DLE. } STRIDE, and STRADDLE.

To lay their native arms aside,
Their modesty; and ride *astride*. *Hudibras.*

I saw a place, where the Rhone is so straitened between two rocks, that a man may stand *astride* upon both at once. *Boyle.*

ASTRILD, in ornithology, a species of the loxia.

ASTRINGENTS, in the materia medica, substances distinguished by a rough austere taste, and changing solutions of iron, especially those made in the vitriolic acid, into a dark purple or black color; such as galls, tormentil root, bistort root, balaustines, terra japonica, acacia, &c.

ASTROBOLISM; from *αστηρ*, a star, and *βαλλω*, to strike; the same with sphacelus; though properly applied to plants which are destroyed in the dog-days, as if blasted by that star.

ASTROCHITES, or ASTROITES. See ASTERIA.

ASTROGNOSIA; from *αστηρ*, star, and *γινωσκω*, I know; the art of knowing the fixed stars, their names, ranks, situations in the constellations, and the like. See ASTRONOMY.

ASTROLABE, } Gr. *αστηρ*, a star, and
AS'TROLABRE, } *λαμβανω*, I take.
AS'TROLABY.

The firste partye of this treatise shall rehearse the figures, and the membres of thine *astrolaby*, because that thou shalt have the greater knowyng of thyne owne instrument. *Chaucer. Astrolabie*, f. 262. c. i.

For I have ben toward the parties of Braban, and beholden the *astrolabre*, that the sterre that is clept the transmontayne, is 53 degrees highe.
Sir John Maundeville.

Liv'd Tycho now, struck with this ray which shone
More bright i' the morn, than others beam at noon,
He'd take his *astrolabe*, and seek out here
What new star 'twas did gild our hemisphere.
Dryden. On the Death of Lord Hastings.

ASTROLABE, among the ancients, was the same as our armillary sphere.

ASTROLABE, among the moderns, is used for a planisphere, or a stereographic projection of the sphere, either upon the plane of the equator, the eye being supposed to be in the pole of the world, or upon the plane of the meridian, at the time the eye is supposed in the point of the intersection of the equinoctial and horizon.

ASTRO'LOGY, } *Αστηρ*, a star, and *λογος*, a discourse; from *λεγω*, I say. In Latin writers, astrology was synonymous with, and more in use than, astronomy. This usage has been imitated by our elder writers.
ASTRO'LOGER,
ASTRO'LOGIAN,
ASTRO'LOGICK,
ASTRO'LOGICALL,
ASTROLO'GICALLY.

On which was written, not in words,
But hieroglyphic mute of birds;
Many rare pithy saws concerning,
The worth of *astrologic* learning.
Butler's Hudibras, part i. can. 3.

A worthy *astrologer*, by perspective glasses, hath found in the stars many things unknown to the ancients. *Raleigh.*

Not unlike that, which *astrologers* call a conjunction of planets, of no very benign aspect the one to the other. *Wotton.*

Some seem a little *astrological*; as, when they warn us from places of malign influence. *Id.*

No *astrologick* wizard honour gains,
Who has not oft been banish'd, or in chains.
Dryden.

A happy genius is the gift of nature: it depends on the influence of the stars, say the *astrologers*; on the organs of the body, say the naturalists; it is the particular gift of heaven, say the divines, both Christians and heathens. *Id.*

Astrologers, that future fates foreshew. *Pope*

I never heard a finer satire against lawyers, than that of *astrologers*; when they pretend, by rules of art, to tell when a suit will end, and whether to the advantage of the plaintiff or defendant. *Swift.*

I know, the learned think of the art of *astrology*, that the stars do not force the actions or wills of men. *Id.*

Astrological prayers seem to me, to be built on as good reason, as the predictions. *Stillingfleet.*

The poetical fables are more ancient than the *astrological* influences; that were not known to the Greeks, till after Alexander the Great. *Bentley.*

The twelve houses of heaven, in the form which *astrologians* use. *Camden.*

ASTROLOGY; from αστηρ, a star, and λογος, discourse; was long considered as a science, by which future events could be foretold, from the aspects and positions of the heavenly bodies. In the literal sense of the term, astrology should signify no more than the doctrine or science of the stars; which was its original acceptation, and made the ancient astrology; though, in course of time, an alteration has arisen: that which the ancients called astrology, being afterwards termed astronomy. Astrology may be divided into two branches, natural and judicial.

ASTROLOGY, JUDICIAL or JUDICIARY, is what we commonly call simple astrology, that which pretends to foretel moral events, i. e. such as have a dependence on the free will and agency of man; as if they were directed by the stars. This art, which owed its origin to the practices of knavery on credulity, is now universally exploded by the intelligent part of mankind. The professors of this kind of astrology maintain, 'That the heavens are one great volume or book, wherein God has written the history of the world; and in which every man may read his own fortune, and the transactions of his time.—The art, they say, had its rise with the science of astronomy. While the ancient Assyrians, whose serene unclouded sky favored their celestial observations, were intent on tracing the paths and periods of the heavenly bodies, they discovered a constant settled relation of analogy between them and things below; and hence were led to conclude these to be the parcæ, the destinies, so much talked of, which preside at our births, and dispose of our future fate. The laws therefore of this relation being ascertained by a series of observations, and the share each planet has therein; by knowing the precise time of any person's nativity, they were enabled, from their knowledge in astronomy, to erect a scheme or horoscope of the situations of the planets, at that point of time; and hence, by considering their degrees of power and influence, and how each was either strengthened or tempered by some other, to compute what must be the result.' Such are the arguments of the astrologers in favor of their science. The chief province now remaining to the professors of this art, is the making of calendars or Almanacks; and the prodigious sale of Moore's almanack, in this country, is no small proof of the popular belief in this subject.

Judicial astrology is commonly said to have been invented in Chaldea, and thence transmitted to the Egyptians, Greeks, and Romans; though some will have it of Egyptian origin, and ascribe the invention to Ham. But it is to the Arabs we owe it. At Rome the people were so infatuated with it, that the astrologers, or, as they were then called, the mathematicians, maintained their ground notwithstanding the edicts of the emperors to expel them out of the city. Domitian, in spite of his hostility to this art, trembled at its denouncements. They prophesied the year, the hour, and the manner of his death; and agreed with his father in foretelling, that he should perish, not by poison, but by the dagger. On the evening of his assassination he spoke of the entrance of the moon into Aquarius on the morrow. 'Aquarius,' he said, 'shall no longer be a watery, but a bloody sign; for a deed shall there be done, which shall be the talk of all mankind.' The dreaded hour of eleven approached. His attendants told him it was passed, and he admitted the conspirators and fell. *Suet. in Domit.* 16.

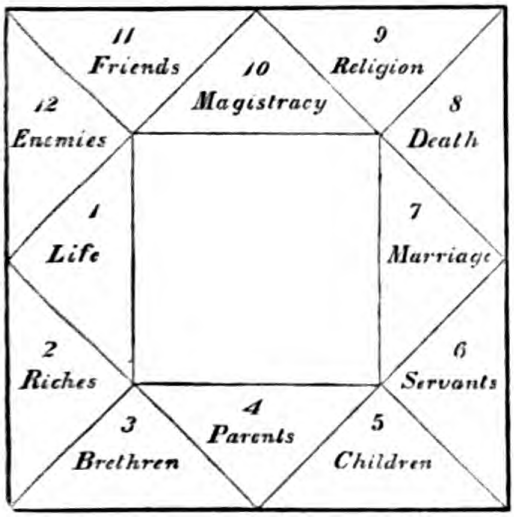
The Brahmins, who introduced and practised this art among the Indians, have hereby made themselves the arbiters of good and evil hours, which gives them great authority; they are consulted as oracles; and have taken care never to sell their answers but at good rates. The same superstition has prevailed in more modern ages and nations. The French historians remark, that in the time of Catherine de Medicis, astrology was so much in vogue, that the most inconsiderable thing was not to be done without consulting the stars. And in the reign of king Henry III. and IV. of France, the predictions of astrologers were the common theme of the court conversation. This predominant humor in that court was well rallied by Barclay, in his Argenis, on occasion of an astrologer, who had undertaken to instruct king Henry in the event of a war then threatened by the faction of the Guises.

Little is known of the early history of astrology in England. Bede and Alcuin, among our Anglo-Saxon ancestors, were addicted to its study; and Roger Bacon could not escape the imputation of the art. His imprisonment was owing, it is well known, to his being supposed skilful in it. But it was the period of the Stuarts which must be considered as the acme of astrology among us. Then Lilly drank the doctrine of the magical circle, and the invocation of spirits from the Ars Notoria of Cornelius Agrippa; used the form of prayer prescribed therein to the angel Salmonæus; and entertained among his familiar acquaintance the guardian spirits of England, Samnael and Malchidael. *Merlin Anglicus*, 1647. The author of Waverley has made ample use of this promising character in his tales relative to this period.

The signs of astrology were primarily divided thus: the six first were called northern, and commanding; the six last southern, and obeying. Next they were distributed into four triplicities, (so called because three belonged to each), fiery, earthy, airy, and watery. Of these the fiery and airy were said to be masculine, the earthy and watery, feminine. The planets by their motion made several aspects. See ASPECTS. The remaining influential parts of the heaven were two, Dragon's Head and Tail, that, is the nodes in which the ecliptic is intersected by the orbits of the planets; and the Part of For

tune, that is the distance of the moon's plane from the sun, added to the degrees of the ascendant.

The influences of the heavenly bodies being determined, it remained only, in each separate case, to observe their positions at some required moment; for upon this, and their aspect to each other, the resolution of any question depended. For this purpose the whole circle of the heavens was distributed into twelve parts or houses, by great circles drawn through the intersection of the horizon and meridian, and cutting the equator in so many equal parts. The first house was placed directly east, and the remainder were counted round in order proceeding to the south according to the motion of the planets. To each of these houses was assigned some peculiar government, according to the scheme below.



The remainder of the art consisted in accurately filling the scheme by an observation, and then framing from it an oracular response.

At the revolution astrology declined; and notwithstanding the labors of the immortal Partridge then, and those of Ebenezer Sibley, which in our own days fill two 4to. volumes, the art may now be considered as exploded.

ASTROLOGY, NATURAL, is the predicting of natural effects from natural causes; as, the changes of weather, winds, storms, hurricanes, thunder, floods, earthquakes, &c. This art properly belongs to physiology, or natural philosophy; and is only to be deduced a posteriori, from phenomena and observations.

ASTROLOMA, in botany; from *αστρον*, a star, and *λωμα*, a fringe, alluding to the five tufts of hair which form a star, near the bottom of the tube of the flower, internally. Brown Prodr. Nov. Holl. v. i. 538. Class and order, pentandria monogynia. Nat. ord. Ericæ Juss. Epacrideæ, brown.

Gen. ch. CAL. perianth inferior, permanent, double: inner of five elliptic-lanceolate, acute, equal, erect leaves; outer of four or more, much shorter, concave, imbricated scales: COR. of one petal, tubular; tube twice the length of the calyx, inflated, furnished on the inside, near the base, with five tufts of soft hairs; limb in five deep, spreading, lanceolate, acute, hairy segments, shorter than the tube. Nectary a cup-shaped undivided gland, surrounding the base of the germen: STAM. filaments five, linear, inserted into the tube, and enclosed within it; anthers oblong, in the mouth of the tube: PIST. Germen superior, roundish, of five cells; style capillary, the length of the tube; stigma 'globose, densely downy:' PERIC. drupa globular, slightly juicy: SEED, nut of five cells, hard and solid, not bursting, with a pendulous oblong kernel in each cell.

Ess. ch.: outer calyx of several imbricated leaves: corolla tubular: tube swelling, twice as long as the calyx, with five internal tufts of hair at the base: tube shorter, spreading, bearded: filaments linear, within the tube: drupa almost dry, of five cells. This genus is closely related to stenanthera, as well as to melichrus. We might perhaps unite them all to styphelia.

Astroloma consists of shrubs, of humble stature, for the most part decumbent: leaves scattered, often ciliated: flowers axillary, erect. There are six species: 1. A. humifusum, diffuse astroloma; stem prostrate, much branched. Found in various parts of New Holland, on the south-west coast, as well as at Port Jackson and in Van Diemen's island. The remaining five species have all been found in the southern part of New Holland, by Mr. Brown, and apparently by no other botanist. We give their names from his work: 2. A. prostratum, prostrate astroloma; 3. A. denticulatum, toothed astroloma; 4. A. pallidum, pale astroloma; 5. A. compactum, compact astroloma; 6. A. tectum, upright astroloma.

ASTROLUS, in natural history, a name given by authors to a white and splendid stone, small in size, and of a roundish figure, resembling the eyes of fishes.

ASTROMETEOROLOGIA, the art of foretelling the weather, and its changes, from the aspects and configurations of the moon and planets. It is a species of astrology, sometimes called meteorological astrology.

ASTRONIUM, in botany, a genus of the pentandria order, and the diœcia class of plants The male calyx consists of five leaves, and the corolla is quinquepetalous. Of the female the calyx and corolla are the same as in the male; the styli are three, and the seed is single. There is but one species, viz. A. graveolens, a native of Jamaica.

ASTRONOMICAL CALENDAR, an instrument engraved on copper plates, printed on paper, and pasted on a board, with a brass slider carrying a hair: it shows by inspection the sun's meridian altitude, right ascension, declination, rising, setting, amplitude, &c. to a greater degree of exactness than the common globes.

ASTRONOMICAL PLACE of a star, or planet, is its longitude, or place in the ecliptic, reckoned from the beginning of Aries in consequentia, or according to the natural order of the signs.

ASTRONOMICALS, a name used by some writers for sexagesimal fractions; on account of their use in astronomical calculations.

ASTRONOMY.

ASTRO'NOMY,
ASTRO NOMICK,
ASTRONOM'ICAL,
ASTRONO MICALLY,
ASTRON'OMER,
ASTRON'OMIZE.

From *αστηρ*, a star, and *νομος*, a law.

Images *astronomically* framed under certain constellations to preserve from several inconveniences, as under the sign of the Lion the figure of a lion made in gold, against melancholic fancies, dropsie, plague, fevers. *Bp. Hall's Cases of Conscience.*

Our forefathers, marking certain mutations to happen in the sun's progress through the zodiack, they registrate and set them down in their *astronomical* canons. *Brown's Vulgar Errors.*

The old ascetick Christians found a paradise in a desert, and with little converse on earth, held a conversation in heaven; thus they *astronomized* in caves; and though they beheld not the stars, had the glory of heaven before them. *Brown. Chris. Mor.* ii. 9.

Astronomers no longer doubt of the motion of the planets about the sun. *Locke.*

The old and new *astronomers* in vain
Attempt the heav'nly motions to explain.
Blackmore.

Can he not pass an *astronomick* line,
Or dreads the sun th' imaginary sign;
That he should ne'er advance, to either pole? *Id.*

To this must be added the understanding of the globes, and the principles of geometry and *astronomy*. *Cowley.*

INTRODUCTION.

Sect. I. Etymology and Definition of Astronomy.

1. Astronomy, a mixed mathematical science, teaching the knowledge of the celestial bodies; their magnitudes, distances, motions, revolutions, and eclipses: and it comprehends also a knowledge of the natural causes on which all celestial phenomena depend. Hence it is as much a branch of physics as of mathematics, and comprehends the theory of the universe.

Sect. II. History of Astronomy.

2. As Astronomy is the most sublime of all the sciences, so it is also the most useful, the most ancient, and, we may add, the most perfect. How can it be otherwise than sublime, when its object is the study of that theatre which our merciful Creator has vouchsafed to establish as an unerring testimony of his existence and his power. Wherever we turn we perceive immensity of operation, guided by the strictest regularity. We find revolutions, intricate and complex, but resolving themselves, by laws irrevocably fixed, into paths the most simple, and the most capable of suffering an increase of numbers without confusion. In another point of view it is sublime: the contemplation of its discoveries and its usefulness would convince the dreary-minded bigot, who sneers at human reason and its efforts, of the amazing extent to which that noblest gift of God to man can be extended. Astronomy is the proudest triumph of philosophy and of human reason. Its superior usefulness when compared with the other sciences can never be opposed: by it the navigator is conducted through unknown seas with safety; and the merchant transports the produce or the surplus of one nation to increase the comforts or relieve the wants of another; in short, it affords the means of intercourse to all the inhabitants of the globe. If, from the folly of mankind, it has sometimes been compelled to effect the transportation of animosity and destruction, it has more frequently assisted the dissemination of arts, civilisation, and happiness. That it is the oldest science we shall more clearly ascertain when we trace, as we shall soon do, its history through the most ancient, and its improvements through the most modern, nations. If then astronomy is possessed of the highest antiquity, the greatest usefulness, and the utmost sublimity, it is an object of the most transcendant worth that can occupy the attention of the human mind.

3. None of the sciences appear to be of higher antiquity than astronomy. From the account given by Moses of the creation of the celestial luminaries, it appears extremely probable that our first progenitor received some knowledge of their nature and uses from his Almighty Creator himself. The Jewish rabbins have adopted this opinion: and, indeed, it is natural to think that no visible objects would more readily excite the curiosity, or appear more worthy of the contemplation of Adam in a state of innocence, than the celestial bodies.

4. Consistently with this, Josephus ascribes to Seth and his posterity a considerable degree of astronomical knowledge. He speaks of two pillars, the one of stone and the other of brick, called the pillars of Seth, upon which were engraved the principles of the science; and he says that the former was still entire in his time. But, be this as it may, it is evident that the great length of the antediluvian lives would afford such excellent opportunities for observing the heavenly bodies, that we cannot but suppose that the science of astronomy must have been considerably advanced before the flood. Josephus says, that longevity was bestowed upon them for the very purpose of cultivating the sciences of geometry and astronomy; observing, that the latter could not be learned in less than 600 years; 'for that period (he adds) is the grand year.'

5. By this remarkable expression is probably meant the period in which the sun and moon come again into the same situation in which they were at the beginning of it, with regard to the nodes, apogee of the moon, &c. 'This period (says Cassini), of which we find no intimation in any monument of any other nation, is the finest period that ever was invented; for it brings out the solar year more exactly than that of Hipparchus and Ptolemy; and the lunar month within about one minute of what is determined by modern astronomers.' If the antediluvians had such a period of 600 years they must have known the motions of the sun and moon more exactly than their descendants knew them for many ages after the flood. That remarkable expression in the book of Job, in which

the Deity is spoken of as the being who 'maketh Arcturus, Orion, and the chambers of the south,' is too striking to be overlooked.

6. Indeed, besides the motives of mere curiosity, which of themselves may be supposed to have excited people to a contemplation of the glorious celestial canopy, it is easy to see that some parts of the science answer such essential purposes to mankind that they could not long be dispensed with. And it has been remarked that traces of this science, in different degrees of improvement, have been found among all nations.

7. Upon the building of the Tower of Babel, it is supposed that Noah retired with his children, born after the flood, to the north-eastern part of Asia, where his descendants peopled the vast empire of China. It is said also that the Jesuit missionaries have found traditional accounts among the Chinese of their having been taught this science by their first emperor Fo-hi, who is supposed to be the same with Noah; and Kempfer asserts that Fo-hi discovered the motions of the heavens, divided time into years and months, and invented the twelve signs, into which they divide the zodiac, and which they distinguish by the following names: 1. the mouse; 2. the ox or cow; 3. the tiger; 4. the hare; 5. the dragon; 6. the serpent; 7. the horse; 8. the sheep; 9. the monkey; 10. the cock or hen; 11. the dog; and 12. the boar. They divide the heavens into twenty-eight constellations, or classes of stars, allotting four to each of the seven planets; so that the year always begins with the same planet; and their constellations answer to the twenty-eight lunar mansions used by the Arabian astronomers.

8. They do not, however, mark these constellations with the figures of animals, like most other nations, but by connecting the stars by straight lines, and denoting the stars themselves by small circles: so, for instance, the great bear would be marked as represented in plate IV. fig. 9.

9. The Chinese themselves have many records of the high antiquity of their astronomy; though not without suspicion of great mistakes. They ascribe the discovery of the pole-star, the invention of the sphere, and mariners' compass, &c. to their emperor Hong-Ti, the grandson of Noah. But on more certain authority it is asserted by Gaubil that, at least 120 years before Christ, the Chinese had determined by observation the number and extent of their constellations as they now stand; the situation of the fixed stars with respect to the equinoctial and solstitial points; and the obliquity of the ecliptic, with the theory of eclipses; and that they were, long before that, acquainted with the true length of the solar year, the method of observing meridian altitudes of the sun by the shadow of a gnomon, and of deducing from thence his declination and the height of the pole.

10. The same missionary also says that the Chinese have yet remaining some books of astronomy which were written about 200 years before Christ; from which it appears that the Chinese knew the daily motion of the sun and moon, and the time of the revolutions of the planets, many years before that period. Du Halde informs us that Tcheou-cong, the most skilful astronomer that ever China produced lived more than a thousand years before Christ, that he passed whole nights in observing the celestial bodies and arranging them into constellations, &c. At present, however, the state of astronomy is but very low in that country, although it is cultivated at Pekin by public authority, as in most of the capital cities of Europe. This is ascribed, by Dr. Long, to a barbarous decree of one of their emperors, to burn all the books in the empire excepting such as related to agriculture and medicine.

11. Astronomy, according to Porphyry, must have been of very ancient standing in the East. He informs us that when Babylon was taken by Alexander there were brought from thence celestial observations for the space of 1903 years; which therefore must have commenced within 115 years after the flood, or within fifteen years after the building of Babel. Epigenes, according to Pliny, affirmed that the Babylonians had observations of 720 years engraven on bricks.

12. Achilles Tatius ascribes the invention of astronomy to the Egyptians; and adds that their knowledge of that science was engraven on pillars, and by that means transmitted to posterity. Bailly, in his elaborate History of Ancient and Modern Astronomy, endeavours to trace the origin of this science among the Chaldeans, Egyptians, Persians, Indians, and Chinese, to a very early period; and he maintains that it was cultivated in Egypt and Chaldea 2800 years before Christ; in Persia, 3209; in India, 3101; and in China, 2952 years before that era. He also apprehends that astronomy had been studied even long before this distant period, and that we are only to date its revival from thence.

13. M. Bailly, in investigating the antiquity and progress of astronomy among the Indians, examines and compares four sets of astronomical tables of the Indian philosophers, viz. that of the Siamese, explained by M. Cassini in 1689; that brought from India by M. le Gentil, of the Academy of Sciences; and two other manuscript tables, found among the papers of M. de Lisle: all of which agree together, and refer to the meridian of Benares. It appears that the fundamental epoch of the Indian astronomy is a conjunction of the sun and moon which took place at the distance of years 3102 A. A. C. And M. Bailly computes that such a conjunction really then happened.

14. He farther observes that at present the Indians calculate eclipses from observations made 5000 years ago; the accuracy of which, with regard to the solar motion, far exceeds that of the best Grecian astronomers. The lunar motions have been computed from the space through which that luminary passes in 1,600,984 days. They also use the cycle of nineteen years, the same as that ascribed by the Greeks to Meton. Their theory of the planets is better than that of Ptolemy, as they do not suppose the earth to be the centre of the celestial motions, and believe that Venus and Mercury move round the sun. Their astronomy also agrees with the most modern discoveries, with regard to the obliquity of the ecliptic and the acceleration of the

equinoctial points, &c. The inhabitants of Japan, of Siam, and of the Mogul's empire, have also been acquainted with astronomy from time immemorial; and the celebrated observatory at Benares is a monument both of the ingenuity of the Hindoos, and of their skill in that science.

15. In the Transactions of the Royal Society of Edinburgh, vol. ii, professor Playfair has given a learned and ingenious dissertation on the astronomy of the Brahmins, in which the great accuracy and high antiquity of the science among them is rendered extremely probable. It appears that their tables and rules of computation have peculiar reference to an epoch, and to observations 3000 or 4000 years A. C. It appears, too, that very considerable mathematical knowledge had been employed in their precepts and calculations. But amongst all these precepts and those calculations, perhaps none will strike the mind of the reader with greater force than the following, from which we shall find, without plucking a leaf from the never-fading laurels of Sir Isaac Newton, that the principle which he developed to the western world, was discovered by the philosophers of the eastern, thousands of years before he existed: of the truth of this the following remarkable passage, translated by Sir William Jones, from the poem of Shirin and Ferhad: 'there is,' says the author of that poem, 'a strong propensity which dances through every atom and attracts the minutest particle to some peculiar object; from such propensity arises every motion perceived in heavenly or terrestrial bodies. It is a disposition to be attracted which taught hard steel to rush from its place and rivet itself on the magnet; it is the same disposition which impels the light straw to attach itself firmly on amber.'

16. We shall conclude this part of the history of Asiatic discoveries in the words of professor Playfair: 'That observations made in India, when all Europe was barbarous or uninhabited, and investigations into the most subtle effects of gravitation made in Europe near five thousand years afterwards, should thus come in mutual support of one another, is perhaps the most striking example of the progress and vicissitudes of science, which the history of mankind has yet exhibited.'

17. It appears too, that astronomy was not unknown to the Americans; though in their division of time they made use only of the solar and not of the lunar motions. The Mexicans, in particular, had a strange predilection for the number thirteen: their shortest periods consisted of thirteen days; their cycle of thirteen months, each containing twenty days; and their epoch of four periods of thirteen years each. This excessive veneration for the number thirteen arose, according to Siguenza, from its being the number of their greater gods. Clavigero also asserts it as a fact, that having discovered the excess of a few hours in the solar above the lunar year, they made use of intercalary days to bring them to an equality, as was done by Julius Cæsar in the Roman calendar—but with this difference, that instead of one day every four years, they interposed thirteen days every fifty-two years.

18. Among the ancients we find the name of Chaldean used often for astronomer or astrologer. Indeed both these nations pretended to a very high antiquity, and claimed the honor of producing the first cultivators of this science. The Chaldeans boasted of their temple or tower of Belus, and of Zoroaster, whom they placed 5000 years before the destruction of Troy; while the Egyptians boasted of their colleges of priests, where astronomy was taught, and of the monument of Osymandias, in which, it is said, there was a golden circle of 365 cubits in circumference, and one cubit thick, divided into 365 equal parts, according to the days of the year, &c. It is indeed evident that both Chaldea and Egypt were countries very proper for astronomical observations, on account of the extended flatness of the country, and the purity and serenity of the air. The tower of Belus, or of Babel itself, was probably an astronomical observatory; and the pyramids of Egypt, whatever they were originally designed for, might perhaps answer the same purpose; at least they show the skill of this people in practical astronomy, as they are all placed with their four fronts exactly facing the cardinal points of the compass.

19. The Chaldeans began to make observations soon after the confusion of languages, as appears from the observations found by Alexander on the taking of Babylon; and it is probable they began much earlier. They determined, with tolerable exactness, the length both of a periodical and synodical month. They discovered that the motion of the moon was not uniform; and they even attempted to assign those parts of the orbit in which the motion is quicker or slower. We are assured by Ptolemy that they were not unacquainted with the motion of the moon's apogee and nodes, the latter of which they supposed made a complete revolution in 6585⅓ days, or a little more than eighteen years, and contained 223 complete lunations, which period is called the Chaldean Saros.

20. Ptolemy also gives us from Hipparchus several observations of lunar eclipses made at Babylon above 720 years A. A. C.; and Aristotle informs us that they had many occultations of the planets and fixed stars by the moon; a circumstance which led them to conceive that eclipses of the sun were to be attributed to the same cause. They had also no inconsiderable share in arranging the stars into constellations, and the comets did not escape their observation. Dialling was also practised among them long before the Greeks were acquainted with that science.

21. The Egyptians were much of the same standing in astronomy with the Chaldeans. Herodotus ascribes their knowledge in the science to Sesostris; but probably not the same whom Newton makes contemporary with Solomon, as they were acquainted with astronomy at least many hundred years before that era. We learn from the testimony of some ancient authors, that they believed the figure of the earth was spherical; that the moon was eclipsed by passing through the earth's shadow, though it does not certainly appear that they had any knowledge of the true system of the universe; that they attempted to measure the magnitude of the earth and sun,

though their methods of ascertaining the latter were very erroneous; and that they even pretended to foretel the appearance of comets, as well as earthquakes and inundations. This science, however, gradually decayed, and in the time of Augustus it was entirely extinct among them.

22. Astronomy passed from Chaldea and Egypt to the Phœnicians, and was applied by that commercial people to the purposes of navigation; and they, in consequence, became masters of the sea, and of almost all the commerce in the world. The Greeks, it is probable, derived their astronomical knowledge chiefly from the Egyptians and Phœnicians, by means of several of their countrymen who visited these nations for the purpose of learning the different sciences. Newton supposes that the division into constellations was made about the time of the Argonautic expedition; but it is probable that most of them were of a much older date, and derived from other nations, though clothed in fables of their own invention.

23. The fable of Atlas supporting the heavens upon his shoulders, shows that some Mauritanian monarch of that name had made considerable advances in astronomical knowledge; and his discoveries had probably been communicated to the Greeks. Several of the constellations are mentioned by Hesiod and Homer, who lived about A. A. C. 870. Their knowledge in this science however, was greatly improved by Thales the Milesian, and other Greeks, who travelled into Egypt, and brought from thence the chief principles of the science. Thales was born about A. A. C. 640, and he was the first among the Greeks who observed the stars, the solstices, and predicted the eclipses of the sun and moon.

24. The science was farther cultivated and extended by his successors Anaximander, Anaximenes, and Anaxagoras; but especially by Pythagoras, who, about A. A. C. 577, brought from Egypt the learning of these people, taught it in Greece and Italy, and founded the sect of the Pythagoreans. He taught that the sun was in the centre of the universe; that the earth was round; that there were antipodes; that the moon reflected the rays of the sun, and was inhabited like the earth; that comets were a kind of wandering stars, disappearing in the further parts of their orbits; that the white color of the milky way was owing to the united brightness of a great multitude of small stars; and he supposed that the distances of the moon and planets from the earth, were in certain harmonic proportions to one another.

25. Philolaus, a Pythagorean, who flourished about A. A. C. 450, and asserted the diurnal motion of the earth on its own axis, was taught by Hicetas, a Syracusan. About the same time Meton and Euctemon flourished at Athens, where they observed the summer solstice, A. A. C. 432, with the risings and settings of the stars, and what seasons they answered to. Meton also invented the cycle of nineteen years, which still bears his name.

26. Eudoxus, of Cnidos, lived about A. A. C. 370, and was one of the most skilful astronomers and geometricians of antiquity, and the supposed inventor of many of the propositions in Euclid's Elements. He introduced geometry into the science of astronomy, and travelled into Asia, Africa, Sicily, and Italy, to improve it: and we are informed by Pliny, that he determined the annual year to contain 365 days 6 hours, and also the periodical time of the planets, and made other important discoveries and observations. Calippus flourished soon after Eudoxus, and his celestial sphere is mentioned by Aristotle; but he is better known by a period of seventy-six years which he invented, containing four corrected Metonic periods, and which commenced at the summer solstice, A. A. C. 330. About this time the knowledge of the Pythagorean system was carried into Italy, Gaul, and Egypt, by certain colonies of Greeks.

27. Vitruvius, however, represents the introduction of astronomy into Greece, in a manner somewhat different. He maintains that Berosus, a Babylonian, brought it immediately from Babylon itself, and opened an astronomical school in the isle of Cos. And Pliny says, that, in consideration of his wonderful predictions, the Athenians erected a statue to him in the gymnasium, with a gilded tongue. But if this Berosus be the same with the author of the Chaldaic histories, he must have lived before Alexander. About this time, or rather earlier, the Greeks having begun to plant colonies in Italy, Gaul, and Egypt, became acquainted with the Pythagorean system, and the notions of the ancient druids concerning astronomy. Julius Cæsar informs us that the latter were skilled in this science; and that the Gauls in general were able sailors, which they could not be without a competent knowledge of astronomy; and it is related of Pytheas, who lived at Marseilles in the time of Alexander the Great, that he observed the altitude of the sun at the summer solstices by means of a gnomon. He is also said to have travelled as far as Thule to settle the climates.

28. After Alexander's death the sciences flourished chiefly in Egypt, under the auspices of Ptolemy Philadelphus, and his successors. He founded a school there, which continued till the invasion of the Saracens, A. A. C. 650. From the founding of that school, the science of astronomy advanced considerably. Aristarchus, about A. A. C. 270, strenuously asserted the Pythagorean system, and gave a method of determining the sun's distance by the dichotomy of the moon.—Eratosthenes, who was born at Cyrene A. A. C. 271, measured the circumference of the earth by a gnomon; and being invited to Alexandria, from Athens, by Ptolemy Euergetes, and made keeper of the royal library there, he set up for that prince those armillary spheres, which Hipparchus and Ptolemy the astronomer afterwards employed so successfully in observing the heavens. He also determined the distance between the tropics to be $\frac{11}{83}$ of the whole meridian circle, which makes the obliquity of the ecliptic in his time to be 23° 51′ $\frac{1}{2}$.

29. The celebrated Archimedes, too, cultivated astronomy, as well as geometry and mechanics, determined the distances of the planets from one another; and constructed a kind of planetarium or orrery, to represent the phenomena and motions of the heavenly bodies.

30. Not to mention many others of the ancients who cultivated astronomy, Hipparchus, who flourished about A. A. C. 140, was the first who applied himself to the study of every branch of that science. Ptolemy says he made great improvements in it; he discovered that the orbits of the planets are eccentric, that the moon moved slower in her apogee than in her perigee, and that there was a motion of anticipation of the moon's nodes: he constructed tables of the motions of the sun and moon, collected accounts of such eclipses, &c. as had been made by the Egyptians and Chaldeans, and calculated all that were to happen for 600 years: he discovered that the fixed stars changed their places, having a slow motion of their own from west to east; he corrected the Calippic period, and pointed out some errors in Eratosthenes's method for measuring the circumference of the earth; he computed the sun's distance more accurately than his predecessors: but his best work is a catalogue of the fixed stars, to the number of 1022, with their longitudes, latitudes, and apparent magnitudes; which, with most of his other observations, are preserved by Ptolemy in his Almagest.

31. From the time of Hipparchus, till that of Ptolemy, little progress was made in astronomy. He was born at Pelusium, in Egypt, in the first century, and made the greatest part of his observations at the celebrated school of Alexandria in that country. Profiting by those of Hipparchus, and other ancient astronomers, he formed a system of his own, which, though erroneous, was implicitly followed for many ages by all nations. He compiled a great work, called the Almagest, which contained the observations and collections of his predecessors in astronomy. This work was preserved from the conflagration of the Alexandrian library by the Saracens, and translated into Arabic, A. D. 827, and into Latin in 1230. The Greek original was not known in Europe till the beginning of the fifteenth century, when it was brought from Constantinople, then taken by the Turks, by a monk of Trapezond, named George, who translated it into Latin; and various other editions have been since made.

32. From A. D. 800, till the beginning of the fourteenth century, the western parts of Europe were immersed in gross ignorance, while the Arabians, profiting by the books they had preserved from the wreck of the Alexandrian library, cultivated and improved all the sciences, and particularly that of astronomy, in which they had many able professors and authors. The caliph Al Mansur first introduced a taste for the sciences into his empire. His grandson, Al Mamun, who ascended the throne in 814, was a great encourager and improver of the sciences, especially of astronomy. Having constructed proper instruments, he made many observations; determined the obliquity of the ecliptic to be 23° 35; and under his auspices a degree of the circle of the earth was measured a second time in the plain of Singar, on the border of the Red Sea.

33. About this time Alferganus wrote elements of astronomy; and Albategnius, who flourished about the year 880, greatly reformed it, by comparing his own observations with those of Ptolemy. Hence he computed the motion of the sun's apogee from Ptolemy's time to his own; settled the precession of the equinoxes at one degree in seventy years; and fixed the obliquity of the ecliptic at 23° 35′. The tables which he composed for the meridian of Aracta, were long esteemed by the Arabians.

34. After this, though the Saracens had many eminent astronomers, several centuries elapsed without producing any very valuable observations, excepting those of some eclipses observed by Ebn Younis, astronomer to the caliph of Egypt, by means of which the quantity of the moon's acceleration since that time may be determined. Other eminent Arabic astronomers were Arzachel, a Moor of Spain, who observed the obliquity of the ecliptic, and improved trigonometry by constructing tables of sines, instead of chords of arches, dividing the diameter into 300 equal parts. Alhazen his contemporary, wrote upon the twilight, the height of the clouds, the phænomenon of the horizontal moon, and first showed the importance of the theory of refractions in astronomy.

35. Ulug Beg, grandson of the celebrated Tamerlane, the Tartarian prince, a great proficient in practical astronomy, had very large instruments, particularly a quadrant of about 180 feet high, with which he made good observations. From these he determined the latitude of Samarcand, his capital, to be 39° 27′ 23″; and composed astronomical tables for the meridian of the same so exact, that they differ very little from those constructed afterwards by Tycho Brahe.—His principal work was his catalogue of the fixed stars, made from his own observations in the year 1437.

36. At this period, almost all Europe was immersed in ignorance; which began to be dispelled by the settlement of the Moors in Spain. The emperor Frederic II. about 1230, also began to encourage learning; restoring some decayed universities, founding a new one in Vienna; and causing the works of Aristotle and Ptolemy's Almagest, to be translated into Latin. Two years after this, John de Sacro Bosco, that is of Halifax, compiled from Ptolemy, Albategnius, Alferganus, and other Arabic astronomers, his work, De Sphæra, which was held in the greatest estimation for 300 years after, and was honored with commentaries by Clavius and other learned men.

37. In 1240 Alphonso, king of Castile, not only cultivated astronomy himself but greatly encouraged others; and by the assistance of several learned men corrected the tables of Ptolemy, and composed those which were denominated from him the Alphonsine tables. About the same time Roger Bacon, an English monk, wrote several tracts relative to astronomy, particularly of the lunar aspects, the solar rays, and the places of the fixed stars; and about 1270 Vitello, a Polander, composed a treatise on optics, in which he showed the use of refractions in astronomy.

38. Till the time of Purbach, who was born in 1423, little farther improvement was made in this science. He composed new tables of sines for every ten minutes, making the radius sixty, with four cyphers annexed. He constructed spheres and globes, and wrote several astronomical tracts, as a commentary on Ptolemy's Alma-

gest; some treatises on arithmetic and dialling, with tables for various climates; new tables of the fixed stars reduced to the middle of that century; and he corrected the tables of the planets, making new equations to them where the Alphonsine tables were erroneous. In his solar tables, he placed the sun's apogee in the the beginning of Cancer; but retained the obliquity of the ecliptic 23° 33½′, as determined by the latest observations. He also observed some eclipses, made new tables for computing them, and had just finished a theory of the planets, when he died in 1462, being only thirty-nine years of age.

39. Purbach was succeeded in these labors by his pupil and friend, John Muller, commonly called Regiomontanus, who completed the epitome of Ptolemy's Almagest, which Purbach had begun; and after the death of his friend was invited to Rome, where he made many astronomical observations. Being returned to Nuremberg in 1471, by the encouragement of Bernard Walther, a wealthy citizen, he made several instruments for astronomical observations, among which was an armillary astrolabe, like that used at Alexandria by Hipparchus and Ptolemy, with which, and a good clock, then but a late invention, he made many observations. He made ephemerides for thirty years to come, showing the lunations, eclipses, &c.; printed the works of many of the most celebrated ancient astronomers, and wrote the theory of the planets and comets, and a treatise on triangles, which contains several good theorems; computed a table of sines for every single minute, to the radius 1,000,000, and introduced the use of tangents into trigonometry.

40. After Muller's death, which happened at Rome in 1476, in his fortieth year, Bernard Walther collected his papers, and continued the astronomical observations till his own death. The observations of both were collected by order of the senate of Nuremberg, and published there in 1544 by John Schoner; they were also afterwards published in 1618 by Snellius, at the end of the observations made by the landgrave of Hesse; and lastly with those of Tycho Brahe in 1666.

41. Walther was succeeded, as astronomer at Nuremberg, by John Werner, a clergyman, who observed the motion of the comet in 1500; and wrote several tracts on geometry, astronomy, and geography, in a masterly manner; the most remarkable of which are those concerning the motion of the eighth sphere, or the fixed stars: in this tract, by comparing his own observations, made in 1514, with those of Ptolemy, Alphonsus, and others, he showed that the motion of the fixed stars, since called the precession of the equinoxes, is 1° 10′ in 100 years. He made also the first star of Aries 26° distant from the equinoctial point, and the obliquity of the ecliptic only 23° 28′; constructed a planetarium, representing the celestial motions according to the Ptolemaic hypothesis; and published a translation of Ptolemy's geography, with a commentary, in which he first proposed the method of finding the longitude at sea by observing the moon's distance from the fixed stars. Werner died in 1528, aged sixty

42. Nicolaus Copernicus rose next, and made so great a figure in astronomy, that the true system discovered, or rather renewed by him, has been ever since styled the Copernican. He restored the old Pythagorean system of the world, which had been set aside from the time of Ptolemy. About A. D. 1507 he conceived doubts of the Ptolemaic system, and entertained notions about the true one, which he gradually improved by a series of astronomical observations, and the study of former authors. By these he formed new tables, and completed his work in 1530, containing a renovation of the new system of the universe, in which all the planets are considered as revolving about the sun. This work was printed in 1543, under the care of Schoner and Osiander, by the title of Revolutiones Orbium Cælestium; and the author received a copy of it a few hours before his death, on the 23d of May 1543, he being then seventy years of age.

43. After the death of this great luminary of Astronomy, the science and practice of it were greatly improved by Schoner, Nonius, Gemma, Frisius, Rothman, Byrgius, the landgrave of Hesse, &c. Schoner reformed and explained the calendar; improved the methods of making celestial observations; and published a treatise on cosmography. He died four years after Copernicus. Nonius wrote several works on mathematics, astronomy, and navigation, and invented some useful and more accurate instruments than formerly, one of these was the astronomical quadrant, on which he divided the degrees into minutes, by a number of concentric circles; the first was divided into ninety equal parts or degrees, the second into eighty-nine, the third into eighty-eight, and so on to forty-six; so that the index of the quadrant always falling upon or near one of the divisions, the minutes are known by an easy computation.

44. Appian's chief work, the Cæsarean Astronomy, was published at Ingolstadt in 1540; in which he shows how to observe the places of the stars and planets by the astrolabe; to resolve astronomical problems by certain instruments; to predict eclipses, and to describe the figures of them; and the method of dividing and using an astronomical quadrant. To these are added observations of five comets, one of which has been supposed the same with that observed by Hevelius, and if so, it ought to have returned again in the year 1789; but astronomers were disappointed in their expectations.

45. Gemma Frisius wrote a commentary on Appian's cosmography, accompanied with many observations of eclipses: he also invented the astronomical ring, and several other instruments useful in taking observations at sea; and was the first who recommended a time-keeper for determining the longitude. Rheticus began a very extensive work, being a table of sines, tangents, and secants, to a very large radius, and to every ten seconds, or one-sixth of a minute; which was completed by his pupil Valentine Otho, and printed in 1594.

46. William IV., landgrave of Hesse Cassel, applied himself to the study of astronomy about A. D. 1561; and, with the best instruments which could then be procured, made a great

number of observations, published by Snellius in 1618, and preferred by Hevelius to those of Tycho Brahe. From these observations he formed a catalogue of 400 stars, with their latitudes and longitudes, adapted to the beginning of the year 1593.

47. Tycho Brahe, a Danish nobleman, began his studies about the same time with the Landgrave of Hesse, and observed the great conjunction of Jupiter and Saturn; but, finding the usual instruments very inaccurate, he constructed many others much larger and more exact. In 1571 he discovered a new star in the chair of Cassiopeia; which induced him, like Hipparchus on a similar occasion, to make a new catalogue of the stars; which he composed to the number of 777, and adapted their places to the year 1600. In 1576, by the favor of the king of Denmark, he built his new observatory, called Uraniburg, on the small island Huenna, opposite to Copenhagen, which he very amply furnished with many large instruments, some of them so divided as to show single minutes, and in others the arch might be read off to ten seconds. One quadrant was divided according to the method invented by Nonius, that is by forty-seven concentric circles; but most of them were divided by diagonals; a method of division invented by Richard Chanceler, an Englishman. Tycho employed his time at Uraniburg to the best advantage, till the death of the king, when, falling into discredit, he was obliged to remove to Holstein: he afterwards introduced himself to the emperor Rodolph, with whom he continued at Prague till his death in 1601. Tycho was the inventor of a system of astronomy, a kind of semi-Ptolemaic, which he vainly endeavored to establish instead of the Copernican. His numerous works, however, show that he was a man of great abilities; and his discoveries, together with those of Purbach and Regiomontanus, were collected and published together in 1621, by Longomontanus, the favorite disciple of Tycho.

48. Tycho, while residing at Prague with the emperor, prevailed on Kepler to leave the university of Glatz, and to come to him; and Tycho dying in 1601, Kepler enjoyed all his life the title of mathematician to the emperor, who ordered him to finish the tables of Tycho Brahe, which he published in 1627, under the title of Rodolphine. He died about A. D. 1630, at Ratisbon, where he was soliciting the arrears of his pension. From his own observations and those of Tycho, Kepler discovered several of the true laws of nature, by which the motions of the celestial bodies are regulated. He discovered that all the planets revolve about the sun, not in circular, but in elliptical orbits, having the sun in one of the foci of the ellipse; that their motions are not equable, but varying, quicker or slower as they are near to the sun, or farther from him; that the areas described by the variable line drawn from the planet to the sun, are equal in equal times, and always proportional to the times of describing them; and that the cubes of the distances of the planets from the sun, were in the same proportion as the squares of their periodical times of revolution. By observations also on comets, he concluded that they are freely carried about among the orbits of the planets, in paths that are nearly rectilinear, but which he could not then determine.

49. At this time there were many other good proficients in astronomy; as Wright, Napier, Bayer, &c. Wright made several good meridional observations of the sun, with a quadrant of six feet radius, in the years 1594, 1595, and 1596; from which he greatly improved the theory of the sun's motion, and computed more accurately his declination, than any person had done before. In 1599 he published also, an excellent work, entitled, 'Certain Errors in Navigation discovered and detected,' containing a method which has commonly, though erroneously, been ascribed to Mercator. To Napier we owe some excellent theorems and improvements in spherics, besides the ever-memorable invention of logarithms. Bayer, a German, published his Uranometria, or the figures of all the constellations visible in Europe, with the stars marked on them, and accompanied by names, or the letters of the Greek alphabet; a contrivance by which they may easily be referred to with distinctness and precision.

50. About the same time, astronomy was cultivated abroad by Mercator, Maurolycus, Maginus, Homelius, Schultet, Stevin, Galileo, &c. and in England by Thomas and Leonard Digges, John Dee, Robert Flood, Harriot, &c. The beginning of the seventeenth century was particularly distinguished by the invention of telescopes, and the application of them to astronomical observations. The more distinguished early observations with the telescope, were made by Galileo, Harriot, Huygens, Hook, Cassini, &c. It is said that, from report only, Galileo made for himself telescopes, by which he discovered inequalities in the moon's surface, Jupiter's satellites, and the ring of Saturn; also spots on the sun, by which he found out the revolution of that luminary on its axis; and he discovered that the nebulæ and milky way were full of small stars.

51. Mr. Harriot, who had previously been known only as an algebraist, made much the same discoveries as Galileo, and as early, if not more so, as appears by his papers in the possession of the earl of Egremont. And Mr. Horrox, a young astronomer of great talents, found out in 1633, that the planet Venus would pass over the sun's disc on the twenty-fourth of November 1639; an event which he announced only to his friend Crabtree; and these two were the only persons in the world that observed this transit. Horrox made also many other useful observations, and had even formed a new theory of the moon, taken notice of by Newton; but his early death, in the beginning of 1640, put a stop to his valuable labors.

52. Hevelius, Burgomaster of Dantzick, flourished about the same time, and observed the spots and phases of the moon; from which observations he compiled his Selenographia. An account of his apparatus is contained in his work entitled Machina Cælestis, a book now very scarce, as most of the copies were accidentally burnt, with the whole house and apparatus, in 1679. Hevelius died in 1688, aged 76.

53. Doctor Hook, a contemporary of Hevelius invented instruments with telescopic sights, and censured the others. This occasioned a sharp dispute between them; to settle which, Halley was sent over to Hevelius to examine his instruments. The two astronomers made several observations together, very much to their satisfaction; and amongst them was one of an occultation of Jupiter by the moon, when they determined the diameter of the latter to be 30′ 33″.

54. Huygens and Fontana, before the middle of the seventeenth century, greatly improved the construction of telescopes. The former constructed one of 123 feet, with which he observed the moon and planets, and discovered that Saturn was encompassed with a ring. With telescopes too, of 200 and 300 feet focus, Cassini saw five satellites of Saturn, with his zones or belts, and the shadows of Jupiter's satellites passing over his body. In 1666 Azout applied a micrometer to telescopes, to measure the diameters of the planets, and other small distances in the heavens: but an instrument of this kind had been invented before, by Gascoigne, though it was but little known abroad. To obviate the difficulties arising from the great lengths of refracting telescopes, and the aberration of the rays, Mersennus, in a letter to Descartes, first started the idea of making telescopes of reflectors, instead of lenses; and in 1663 James Gregory of Aberdeen showed how such a telescope might be constructed.

55. Sir Isaac Newton, after spending some time on the construction of both sorts of telescopes, found out the great inconvenience which arises to refractors from the different refrangibility of the rays of light; for which not finding a remedy, and pursuing the other kind, in 1672, he presented to the Royal Society two reflectors, constructed with spherical speculums. The inconvenience, however, arising from the different refrangibility of the rays of light, has since been fully obviated by Dollond.

56. Towards the end of the seventeenth, and beginning of the eighteenth century, practical astronomy rather languished; but the speculative part was carried to the highest perfection by Newton in his Principia, by David Gregory, Keil, and others. Soon after this, great improvements in astronomical instruments began to take place, particularly in Britain. Graham not only improved clocks and watch work, but also carried the accuracy of astronomical instruments to a surprising degree. He constructed the old eight feet mural arch at the Royal Observatory, Greenwich, and a small equatorial sector for making observations out of the meridian; but he is chiefly remarkable for contriving the zenith sector of twenty-four feet radius, and afterwards one of twelve feet and a half, with which Bradley discovered the aberration of the fixed stars. The reflecting telescope of Gregory and Newton was greatly improved by Hadley, who presented a very powerful instrument of that kind to the Royal Society in 1719. He invented also the reflecting quadrant or sector, now called by his name, presented to the society in 1731, and now universally used at sea. It appears, however, that an instrument similar to this in its principles, had been invented by Newton; and a description, with a drawing of it, was given by him to Halley, when he was preparing for his voyage in 1701, to discover the variation of the needle: it has also been asserted, that Godfrey of Philadelphia, in America, made the same discovery, and the first instrument of this kind.

57. About the middle of this century, the constructing and dividing of large astronomical instruments were carried to great perfection by Bird, and reflecting telescopes were not less improved by Short, who first executed the divided object glass micrometer, which had been proposed and described by Louville and others. Dollond also improved refracting telescopes, by means of his achromatic glasses: and the discoveries of Herschel are owing to the amazing powers of reflectors of his own construction. Thus, the astronomical improvements in the present century have been chiefly owing to the inventions of, and improvements in, the instruments, and to the establishment of regular observatories in England, France, and other parts of Europe.

58. Roemer, a celebrated Danish astronomer, first made use of a meridional telescope; and, by observing the eclipses of Jupiter's satellites, first discovered the progressive motion of light, concerning which he read a dissertation before the Academy of Sciences at Paris, in 1675. Flamsteed, appointed the first astronomer royal at Greenwich, in 1675, observed for forty-four years, and gave a catalogue of 3000 stars with their places, to the year 1689; also new solar tables, and a theory of the moon according to Horrox; likewise, in Sir Jonas Moore's System of Mathematics, he gave a curious tract on the sphere, showing how to construct, geometrically, eclipses both of the sun and moon, as well as occultations of the fixed stars by the moon. On his observations were founded both Halley's tables, and Newton's theory of the moon. Cassini, the first French astronomer royal, made many observations on the sun, moon, planets, and comets, greatly improved the elements of their motions, erected the gnomon, and drew the celebrated meridian line in the church of Petronia at Bologna.

59. Flamsteed was succeeded, in 1719, as astronomer royal at Greenwich, by Dr. Halley, who had been sent at the early age of twenty-one, to the island of St. Helena, to observe the southern stars and make a catalogue of them, which was published in 1679. In 1705 he published his Synopsis Astronomiæ Cometicæ, in which he ventured to predict the return of a comet in 1758 or 1759. He first discovered the acceleration of the moon, and gave a very ingenious method for finding her parallax, by three observed phases of a solar eclipse; published in the Philosophical Transactions many learned papers, and amongst them, some concerning the use that might be made of the next transit of Venus, in determining the distance of the sun from the earth; composed tables of the sun, moon, and all the planets, which are still in great repute; and recommended the method of determining the longitude, by the moon's distances from the sun, and certain fixed stars; a method which was first proposed by Warner,

and which has since been carried into execution.

60. A dispute concerning the figure of the earth took place about this time. Newton had determined, from a consideration of the laws of gravity, and the diurnal motion of the earth, that the figure of it was an oblate spheroid; but Cassini, from the measures of Picart, supposed it to be an oblong spheroid. To settle this dispute it was resolved, under Louis XV. to measure two degrees of the meridian; one near the equator, and the other as near the pole as possible. For this purpose, the Royal Academy of Sciences sent to Lapland, Maupertuis, Clairault, Camus, and Lemonnier: who were accompanied by Outhier, and Celsus, professor of anatomy at Upsal. On the southern expedition were sent Godin, Condamine, and Bouguer, to whom the king of Spain joined George Juan and Antonio de Ulloa. These set out in 1735, and returned at different times 1744, 1745, and 1746; but the former party who set out only in 1736, returned the year following; having both fulfilled their commissions. Picart's measure was revised by Cassini and De la Caille, which, after his errors were corrected, was found to agree very well with the other two; and the result of the whole served to confirm the determination of the figure before laid down by Newton. On the southern expedition, the attraction of the great mountains of Peru was found to have a sensible effect on the plumb-line of one of their largest instruments, deflecting it seven or eight seconds from the true perpendicular.

61. In 1742 Dr. Bradley succeeded, on the death of Dr. Halley, as astronomer royal at Greenwich. The accuracy of his observations enabled him to detect the smaller inequalities in the motions of the planets and fixed stars. The consequence of his accuracy was, the discovery of the aberration of light, the nutation of the earth's axis, and a much greater degree of perfection in lunar tables. He observed the places, and computed the elements of the comets which appeared in the years 1723, 1736, 1743, and 1757; made new and more accurate tables of the motions of Jupiter's satellites, and, from a multitude of observations of the luminaries, constructed a table of refractions; which has ever since been in very general estimation for its accuracy, though it is now generally admitted that it gives the refractions too small. He also, with a very large transit instrument, and a new mural quadrant of eight feet radius, constructed by Bird in 1750, made an immense number of observations for settling the places of all the stars in the British catalogue, together with nearly 1500 places of the moon, the greater part of which he compared with Mayer's tables. Bradley died in 1762.

62. Astronomers elsewhere were equally assiduous in their endeavours to promote this science. The theory of the moon was particularly considered by Clairault, D'Alembert, Euler, Mayer, Simpson, and Walmsley, and especially Clairault, Euler, and Mayer, who computed complete sets of lunar tables: those of the last of these authors, for their superior accuracy, were rewarded with a premium of £3000, and brought into use in the computation of the Nautical Ephemeris, published by the Board of Longitude. The most accurate tables of the satellites of Jupiter were composed from observations by Wargentin, an excellent Swedish astronomer. But these have again been superseded by the more recent ones of Delambre. There is much room for improvement, however, in our knowledge of the elements of Jupiter's satellites, even with respect to the first satellites, the predicted and actual times of immersion or emersion sometimes differ to the extent of two minutes.

63. Among the many French astronomers who contributed to the advancement of the science, it was particularly indebted to De la Caille for an excellent set of solar tables. He, in 1750, went to the Cape of Good Hope to make observations in concert with the most celebrated astronomers in Europe, for determining the parallax of Mars and the moon, and thence that of the sun, which it was concluded did not much exceed ten seconds. Here he re-examined and adjusted, with great accuracy, the places of stars about the southern pole; and also measured a degree of the meridian. In Italy the science was assiduously cultivated by Bianchini, Boscovich, Frisi, Manfredi, Zanotti, and many others; in Sweden, by Wargentin, already mentioned, Blingenstern, Mallet, and Planman; and in Germany by Euler, Mayer, Lambert, Grischow, and others.

64. In 1760 all the learned societies in Europe made preparations for observing the transit of Venus over the sun, which had been predicted by Halley more than eighty years before, with the use that might be made of it in determining the sun's parallax, and the distances of the planets from the sun. The same exertions were repeated, to observe the transit in 1769, by sending observers to different parts of the world; and from the whole, Short computed that the sun's parallax was nearly 8¾ seconds, and consequently the distance of the sun from the earth about 24,114 of the earth's diameters, or ninety-six millions of miles. Bradley was succeeded, in 1762, in his office of astronomer royal, by Bliss, Savilian professor of astronomy; who, being in a declining state of health, did not long enjoy it.

65. In 1765 Bliss was succeeded by Nevil Maskelyne, who, in January 1761, was sent by the Royal Society, at a very early age, to the island of St. Helena, to observe the transit of Venus over the sun, and the parallax of the star Sirius. The first of these objects partly failed, by clouds preventing the sight of the second internal contact; and the second also, owing to Short having suspended the plumb-line by a loop from the neck of the central pin. However, he indemnified himself by many other valuable observations: thus, he observed at St. Helena, the tides; the horary parallaxes of the moon; and the going of a clock, to find by comparison with its previous going, which had been observed in England, the difference of gravity at the two places; also in going out and returning, he practised the method of finding the longitude by the lunar distances taken by Hadley's quadrant, making out rules for the use of seamen, and teaching the method to the officers on board the ship. This method was explained in the Philo-

sophical Transactions, for 1762, and more fully afterwards in the British Mariner's Guide, published in 1763. In September 1763, he sailed for the island of Barbadoes, to settle the longitude of the place, to examine Harrison's watch, and to try Irwin's marine chair. While at Barbadoes, he made many other observations, and amongst them, many relating to the moon's horary parallaxes, not yet published.

66. Maskelyne returning to England in the end of 1764, recommended to the board of Longitude the lunar method of finding the longitude; and proposed to it the project of a nautical almanack, to be calculated and published to facilitate that method. This the board agreed to, and the first volume was published for 1767, and has continued ever since to the great benefit of navigation.

67. In consequence of a proposal, made by this astronomer to the Royal Society, the project was formed of measuring accurately the effect of some mountain on the plumb-line, in deflecting it from the perpendicular; and Schehallien, in Scotland, having been found the most convenient in this island for the purpose, he went into Scotland to conduct the business; by this experiment he showed that the sum of the deflections on the two opposite sides was about 11⅗″ of a degree; and proved to the satisfaction of the whole world, the universal attraction of matter. From the data resulting from these measures, Dr. Hutton computed the mean density of the whole matter in the earth, to be about 4½ times that of common water.

68. The discoveries of Dr. Herschel form a new era in astronomy. In 1781, he began with observations on the periodical star in Collo Ceti, and a new method of measuring the lunar mountains, none of which he made more than half a mile in height; and having constructed telescopes far more powerful than any former ones, proceeded to other observations; such as, on the rotation of the planets round their axes; on the parallax of the fixed stars; catalogues of double, triple, &c. stars; on the proper motion of the sun and solar system; on the remarkable appearances of the polar regions of the planet Mars; &c. Above all his discoveries of a new primary planet, on the 13th of March, 1781, called by him the Georgian Planet, but named the Herschel, and sometimes Uranus, by foreign astronomers, and of its six satellites, discovered since that time, has greatly enlarged the bounds of the solar system, this new planet being more than twice as far from the sun as the planet Saturn.

69. M. Piazzi, astronomer royal at Palermo, discovered on January 1st, 1801, another planet moving in an orbit between Mars and Jupiter. This planet has been named Ceres. Another was discovered on March 28th, 1802, by Dr. Olbers of Bremen, and named Pallas; a third was discovered and named Juno by Mr. Harding of Lilienthal; and a fourth by Dr. Oliers, and named Vesta, on March 29th, 1807. These planets are all very small, and all so nearly at the same distance from the sun, and moving in orbits differing so little either in eccentricity or declination, that they have by some been conjectured to be fragments of a larger planet, which from some explosion had been burst, and its parts scattered abroad in space.

It is probable that as astronomical instruments become more improved, further discoveries of the same kind will be made, and that the boundaries of the solar system may be enlarged by the discerning of planets which circulate round the sun even beyond the orbit of the Georgian planet.

71. Dr. Maskelyne was succeeded at the Greenwich observatory in 1811, by J. Pond, esq. the present astronomer royal, under whose managment the business of this important institution has been kept in full activity. The number of instruments has been greatly increased. The use of the mural quadrant has been abandoned for that of the circle, two of which, one by Troughton, and one by T. Jones, are in constant use, and give results which accord with each other in a manner altogether surprising. The most important discoveries may be hoped for from the skill and activity with which the splendid instruments at Greenwich are managed. All indeed that appears wanting in that institution, is a telescope of the first class to follow up the discoveries in siderial astronomy, which conferred such splendor on the name of Herschel. But we are glad to perceive that this department of the science is likely to be carried to a degree of perfection which few would have hoped for, by Mr. Herschel, junior, the worthy and able son of the great astronomer, and his friend Mr. South, whose recent publication on the motion of double stars does them the highest credit.

72. On the continent of Europe, the greatest ardor is at present evinced in the cultivation of this science. The labors of Schumercher at Altona, are unintermitted and most valuable. He may be considered at present as a common bond among astronomical men. Greass at Gottingen, Littrow, at Venice; Bressel, at Konigsberg; Struve, at Dorpat; Zach. at Genoa; and a host of other individuals distinguished for their labors and their zeal, have devoted themselves to astronomy.

73. In our own country, it would be injustice to pass over the names of Woodhouse and Brinkley, whose eminence in this science is of the most distinguished kind.

74. Another striking feature of the present day is the formation of 'The Astronomical Society of London,' an institution whose only object is the cultivation of astronomical science. This society includes among its members almost every individual known to the world as distinguished for astronomical knowledge. The memoirs of the society, of which the third part is just ready for publication, are very valuable and interesting.

75. The university of Cambridge has recently evinced its sense of the importance of a practical knowledge of this science, by the erection of an observatory on the most splendid scale; and the English government has also shown by the recent order for the establishment of an observatory at the Cape of Good Hope, that the importance which it has always attached to the cultivation of this science, has suffered no abatement.

76. Historical accounts and lists of the principal authors and writings on this science, are contained in Weidler's and Bailly's History of Astronomy. Adam, Vossius, Bayle, Chauffepie, Niceron, Perraut, the chronological table of Riccioli, and that of Sherburn, at the end of his edition of Manilius; and the first volume of De la Lande's astronomy, may also be consulted. The more modern and popular books on astronomy are very numerous and well known; as those of Ferguson, Long, Emerson, Vince, De la Lande, Leadbetter, Brent, Keil, Whiston, Wing, Street, Bonnycastle, Gregory, Brinkley, &c. but the recent treatise on astronomy by Woodhouse, is by far the most complete that has appeared in the English language.

PART I.

OF THE APPEARANCES OF THE CELESTIAL BODIES.

SECT. I.—OF THE CELESTIAL BODIES, AS SEEN BY THE NAKED EYE.

77. The most obvious celestial phenomenon is the daily rising of the sun in the east, and his setting in the west; next to which is that of the moon and stars appearing, and keeping the same westerly course. These cannot be long taken notice of before we must perceive that neither the sun nor moon always rise exactly in the same point of the heavens. If we observe the sun, from the beginning of March, we find that he seems to rise almost every day sensibly more to the northward, than he did the day before, to continue longer above the horizon, and to be more elevated at mid-day, till towards the end of June, when he is observed to move backward in the same manner: this retrograde motion continues beyond the middle of December, when he begins again to move forwards, and so on.

78. When the new moon (as she is called, at her early period,) first becomes visible, she appears in the western part of the heavens, at no great distance from the sun. Every night she increases in size, and removes to a greater distance from the sun; till at last she appears in the eastern part of the horizon, just at the time the sun disappears in the western. After this she gradually moves farther and farther eastward, rising every night later and later, till at last she seems to approach the sun as nearly in the east as she did in the west, and rises only a little before him in the morning, as in the first part of her course she set in the west not long after him. All these different appearances are completed in the space of a month; after which they begin in the same order as before.

79. Several of the stars neither rise in the east, nor set in the west, but seem to turn round an immovable point, near which is placed a single star called the pole, or pole star. This point is more or less elevated according to the different parts of the earth from which we take our view. The inhabitants of Lapland, for instance, see it much more elevated above the horizon than we do; we see it more elevated than the inhabitants of France and Spain; and they, again, see it more elevated than the inhabitants of Barbary. By continually travelling south, this star at last seems depressed in the horizon, and another point appears directly opposite to it, round which the stars in the southern part of the horizon seem to turn. In this part of the heavens, however, there is no star so near the pole as there is in the northern part: nor is the number of stars in the southern part of the heavens so great as in the northern part.

80. Supposing us still to travel southward, the north pole entirely disappears, and the whole atmosphere appears to turn round a single point in the south, as the northern hemisphere appears to us to turn round the pole star. The general appearance of the heavens, therefore, is that of a vast concave sphere, turning round two points fixed in the north and south parts of it, once in twenty-four hours.

81. The majority of the stars keep their places with respect to one another; that is, if we observe two stars having a certain apparent distance from each other one night, they seem to have the same every succeeding night. But all the stars in the heavens do not appear to be of this fixed kind: some of them change their places, with regard to the fixed stars, and to one another. Of these ten are at present known. They are distinguished by the appellation of planets, from *πλαναω*, to wander, and are called by the names of Mercury, Venus, Mars, Ceres, Pallas, Juno, Vesta, Jupiter, Saturn, and Herschel, Uranus, or the Georgium Sidus. The fixed stars are likewise distinguished from the planets by continually exhibiting that appearance which is called the scintillation or twinkling of the stars.

82. Mercury is a small star which emits a very bright white light; but, by always keeping near the sun, he is seldom to be seen; and when he does make his appearance, his motion toward the sun is so swift, that he can only be discerned for a short time, a little after sun-set, and again a little before sun-rise.

83. Venus the most beautiful star in the heavens, known by the names of the morning and evening star, keeps near the sun, though at almost double the distance of Mercury. She is never seen in the eastern quarter of the heavens when the sun is in the western; but seems to attend him in the evening, or to give notice of his approach in the morning.

84. Mars is of a red fiery color, and gives a much duller light than Venus, though sometimes he equals her in size. He is not subject to the same limitation in his motions as Mercury or Venus; but appears sometimes very near the sun, and sometimes at a great distance from him; sometimes rising when the sun sets, or setting when he rises. Of this planet it is remarkable, that when he approaches any of the fixed stars, they change their color, grow dim, and often become totally invisible, though at some little distance from the body of the planet: but Herschel thinks this has been exaggerated by former astronomers.

85. Jupiter and Saturn often appear at great distances from the sun. The former shines with a bright white light, and the latter with a pale faint one; and the motion of Saturn among the

fixed stars is so slow, that, unless carefully observed, he will not be thought to move at all. Herschel's motion is still slower, and he is seldom to be seen without a telescope.

86. The apparent magnitudes of these bodies are very different at different times. Every person must have observed that Venus is not always equally big; and this apparent difference of magnitude is so remarkable, that she appears no less than thirty-two times larger at some seasons than at others. This increase of magnitude is likewise very remarkable in Mars and Jupiter, but less so in Saturn, Mercury and Herschel. These planets by no means appear to us to move regularly in the heavens, but, on the contrary, sometimes go forward, sometimes backward, and sometimes seem to be stationary.

87. There are other moving bodies, besides the planets, which appear at uncertain intervals, and with a very different aspect. These are very numerous, and upwards of 500 are recorded as having visited our system. They are called Comets, from κομητης, hairy, having a long tail, somewhat resembling the appearance of hair. This, however, is not always the case; for some comets have appeared as round as planets: but in general they have a luminous matter diffused around them, or projecting out from them, which to appearance very much resembles the Aurora Borealis. They appear to come in a direct line towards the sun, as if they were going to fall into his body; and after having disappeared for some time, in consequence of their proximity to that luminary, fly off again on the other side as fast as they came, projecting a tail much greater and brighter in their recess; but, getting daily at a farther distance from us in the heavens, they continually lose some of their splendor, and at last totally disappear.

88. The apparent magnitude of comets is very different; sometimes they appear only of the bigness of the fixed stars; at other times they equal the diameter of Venus, and sometimes even of the sun or moon. In 1652 Hevelius observed a comet which seemed not inferior to the moon in size, though it was not so bright, but appeared with a pale and dim light. These bodies also sometimes lose their splendor suddenly, while their apparent bulk remains unaltered. With respect to their apparent motions, they have all the inequalities of the planets; sometimes seeming to go forwards, sometimes backwards, and sometimes to be stationary.

89. The fixed stars are liable to changes: several observed by the ancients are now no more to be seen; and new ones have appeared which were unknown to the ancients. Some of them have also disappeared for some time, and again become visible. At times some have been observed to distinguish themselves by superlative lustre; but afterwards decreasing, to vanish by degrees, and to be no more seen. One of these stars being first seen and observed by Hipparchus, set him upon composing a catalogue of the fixed stars, that by it posterity might learn whether any of the stars perish, and others are produced afresh. After several ages Tycho Brahe observed another new star, which put him on the same design. Of these changes accounts have been given by Halley, Montanere, and Pigot, in the Philosophical Transactions. As a specimen of these phenomena we shall here insert an extract from the former.

90. 'The first new star in the chair of Cassiopeia was not seen by Cornelius Gemma on the 8th of November, 1572, who says, he that night considered that part of the heavens in a very serene sky, and saw it not: but that the next night November 9, it appeared with a splendor surpassing all the fixed stars, and scarcely less bright than Venus. This was not seen by Tycho Brahe before the 11th of the same month: but from thence he assures us that it gradually decreased and died away, so that in March 1574, after sixteen months, it was no longer visible; and at this day no signs of it remain. The place, thereof, in the sphere of fixed stars, by the accurate observations of Tycho, was 0ˢ 9° 17′ *a* 1 ᵐᵃ ✱ ♈ⁱˢ, with 53° 45′ N. lat.

91. 'Such another star was seen and observed by the scholars of Kepler, to begin to appear Sept. 30. O. S. anno 1604, and which was not to be seen the day before. It broke out at once with a lustre surpassing that of Jupiter; and like the former died away gradually, and in much about the same time disappeared totally, there remaining no footsteps thereof in January 160⅘. This was near the ecliptic, following the right leg of Serpentarius; and by the observations of Kepler and others, was in 7ˢ 20° 00′ *a* 1ᵐᵃ ✱ ♈, with north lat. 1° 56′. These two seem to be of a distinct species from the rest, and nothing like them has appeared since.

92. 'But between them, viz. in 1596, we have the first account of the wonderful star in Collo Ceti, seen by David Fabricius on the 3d of August, as bright as a star of the third magnitude, which has been since found to appear and disappear periodically; its period being precisely seven revolutions in six years, though it returns not always with the same lustre. Nor is it ever totally extinguished, but may at all times be seen with a six feet tube. This was singular in its kind till that in Collo Cygni was discovered. It precedes the first star of Aries 1° 40′, with 15° 57′ south lat.

93. 'Another new star was first discovered by William Jansonius in the year 1600, in pectore, or rather in eductione, Colli Cygni, which exceeded not the third magnitude. This having continued some years became at length so small as to be thought by some to have disappeared entirely; but in the years 1657, 1658, and 1659, it again arose to the third magnitude; though soon after it decayed by degrees to the fifth or sixth magnitude; and at this day is to be seen as such in 9ˢ 18° 38′ *a*ᵐᵃ ✱ ♈, with 55° 29′ north lat.

94. 'A fifth new star was first seen by Hevelius in 1600, on July 15, O. S. as a star of the third magnitude, but by the beginning of October was scarce to be perceived by the naked eye. In April following it was again as bright as before, or rather greater than of the third magnitude, yet wholly disappeared about the middle of August. The next year, in March 1672, it was seen again, but not exceeding the sixth magnitude: since when it has been no farther visible, though we have frequently sought for its

return; its place is 9ˢ 3° 17′ α 1ma $*$ Υ, and has lat. north 47° 28′.

95. 'The sixth and last is that discovered by Mr. G. Kirch in the year 1686, and its period determined to be of 404½ days; and though it rarely exceeds the fifth magnitude, yet it is very regular in its returns, as we found in the year 1714. Since then we have watched, as the absence of the moon and clearness of the weather would permit, to catch the first beginning of its appearance in a six feet tube, that, bearing a very great aperture, discovers most minute stars. And on June 15, last, it was first perceived like one of the very least telescopical stars; but in the rest of that month and July it gradually increased so as to become in August visible to the naked eye, and so continued all the month of September. After that it again died away by degrees, and on the 8th of December, at night, was scarcely discernible by the tube; and, as near as could be guessed, equal to what it was at its first appearance on June 15th; so that this year it has been seen in all nearly six months, which is but little less than half its period; and the middle, and consequently the greatest brightness, falls about the 10th of September.'

96. The galaxy or milky way is a remarkable appearance in the heavens, being a broad ring of a whitish color surrounding the whole celestial concave, whose light is now known to proceed from vast clusters of stars, discoverable only by the telescope. Mr. Brydone, in his journey to the top of Mount Ætna, found this phenomenon to make a glorious appearance, 'like a pure flame (as he expresses it) that shot across the heavens.'

97. The only other appearances which are very observable by the unassisted eye, are those obscurations of the sun and moon commonly called eclipses. These are too well known, and attract the attention too much, to need any particular description. We have, however, accounts very well authenticated, of obscurations of the sun continuing for a much longer time than a common eclipse possibly can do, and likewise of the darkness being much greater than usual on such occasions.

Sect. II. Of the Celestial Bodies as seen through Telescopes.

98. Although the sun, to the naked eye, is extremely bright and splendid, he is frequently observed, even through a telescope of but very small powers, to have dark spots on his surface, which are said to have been first discovered in 1611; and the honor of the discovery is disputed betwixt Galileo and Scheiner, a German Jesuit at Ingolstadt. But whatever merit Scheiner might have in the priority of the discovery, it is certain that Galileo far exceeded him in accuracy; though Scheiner's work has considerable merit, as containing observations selected from above 3000 made by himself.

99. It appears from the papers of Harriot, the English algebraist, which were found in 1784, at the seat of the earl of Egremont in Sussex, that he made a great number of observations upon the solar spots much about the same time; and Dr. Zach, astronomer to the duke of Saxe Gotha, in an account of Harriot's papers, published in 1788, says that there is the greatest probability of Harriot being the first discoverer of these spots, even before either Galileo or Scheiner. Galileo's first produced observations are only for June 2, 1612, and those of Scheiner of the month of October in the same year, whereas Harriot's, as appears from his MSS, are of December 8, 1610.

100. There is great variety in the magnitudes of the solar spots; the difference is chiefly in superficial extent of length and breadth; their depth or thickness is very small: some have been so large as by computation to be capable of covering the whole surface of the earth, or even five times its surface. The diameter of a spot, when near the middle of the disk, is measured by comparing the time it takes in passing over a cross hair in a telescope, with the time wherein the whole disk of the sun passes over the same hair. It may also be measured by the micrometer; and thus we may judge how many times the diameter of the spot is contained in the diameter of the sun.

101. Spots are subject to increase and diminution of magnitude, and seldom continue long in the same state. They are of various shapes; most of them having a deep black nucleus, surrounded by a dusky cloud, whereof the inner parts near the black are a little brighter than the outskirts. They change their shapes, something in the manner that our clouds do, though not often so suddenly; thus what is of a certain figure to day, will to-morrow, or perhaps in a few hours, be of a different one; what is now but one spot will in a little time be broken into two or three; and sometimes two or three spots will coalesce, and be united into one. The number of spots on the sun is very uncertain; sometimes there are a great many, sometimes very few, and sometimes none at all.

102. Scheiner made observations on the sun from 1611 to 1629; and says he never found his disk quite free from spots, excepting a few days in December, 1624. At other times he frequently saw twenty, thirty, and in the year 1625, he was able to count fifty spots on the sun at a time. In an interval afterwards of twenty years, from 1650 to 1670, scarcely any spots were to be seen, and since that time some years have furnished a great number of spots, and others none at all; but since the beginning of the last century, not a year has passed wherein some were not seen.

103. It is evident from these various appearances that the spots are not endowed with any permanency, nor at all regular in their shape, magnitude, number, or time of appearance or continuance. Hevelius observed one that arose and vanished in sixteen or seventeen hours; and no one has been observed to continue longer than seventy days: those spots that are formed gradually are gradually dissolved, while those that arise suddenly are for the most part suddenly dissolved. When a spot disappears, that part where it was, generally becomes brighter than the rest of the sun, and continues so for several days: on the other hand, those bright parts

called faculæ (as the others are called maculæ) sometimes turn to spots.

104. The solar spots appear to have a motion across the sun's disk. Every spot, if it continues long enough without being dissolved, appears to enter the sun's disk on the east side, to go from thence with the velocity continually increasing till it has gone half way, and then to move slower and slower till it goes off at the west side; after which it disappears for about the same space of time that it spent in crossing the disk, and then enters upon the east side again, nearly in the same place, and crosses it in the same track, and with the same unequal motion as before. The motion of the spots is in the order of the signs (the same way that all motions in the solar system, those of the comets alone excepted, are performed); and therefore, as the earth revolves round the sun the same way with the solar spots, one of these will appear to remain longer on the disk than it would otherwise do if the earth remained at rest.

105. The face of the sun, when clear of spots, seen by the naked eye through a smoked or colored glass, or through a thin cloud, or the vapours near the horizon, appears all over equally luminous; but when viewed through the telescope, the glasses being smoked or colored, the middle of the disk appears brighter than the outskirts, because the light is darted more directly towards us from the middle than from any other part, and the faculæ appear more distinctly near the sides, as being on a darker ground than in the middle.

106. All the phenomena of the solar spots, as delivered by Scheiner and Hevelius, may be summed up in the following particulars: 1. Every spot which has a nucleus, or considerably dark part, has also an umbra, or fainter shade, surrounding it. 2. The boundary betwixt the nucleus and umbra is always distinct and well defined. 3. The increase of a spot is gradual, the breadth of the nucleus and umbra dilating at the same time. 4. In like manner, the decrease of a spot is gradual; the breadth of the nucleus and umbra contracting at the same time. 5. The exterior boundary of the umbra never consists of sharp angles; but is always curvilinear, how irregular soever the outline of the nucleus may be. 6. The nucleus of a spot, whilst on the decrease, often changes its figure by the umbra encroaching irregularly upon it, insomuch that in a small space of time new encroachments are discernible, whereby the boundary betwixt the nucleus and umbra is perpetually varying. 7. It often happens, by these encroachments, that the nucleus of a spot is divided into two or more nuclei. 8. The nuclei of the spots vanish sooner than the umbræ. 9. Small umbræ are often seen without nuclei. 10. An umbra of any considerable size is seldom seen without a nucleus in the middle of it. 11. When a spot which consists of a nucleus and umbra is about to disappear, if it is not succeeded by a facula, or spot brighter than the rest of the disk, the place where it was is soon after not distinguishable from the rest.

107. Dr. Wilson, in the Phil. Trans. vol. lxiv. mentions the following appearances: 1. When the spot is about to disappear on the western edge of the sun's limb, the eastern part of the umbra first contracts, then vanishes, the nucleus and western part of the umbra remaining; then the nucleus gradually contracts and vanishes, while the western part of the umbra remains. At last this disappears also; and if the spot remains long enough to become again visible, the eastern part of the umbra first becomes visible, then the nucleus; and when the spot approaches the middle of the disk, the nucleus appears environed by the umbra on all sides, as already mentioned. 2. When two spots lie very near to one another, the umbra is deficient on that side which lies next the other spot; and this will be the case, though a larger spot should be contiguous to one much smaller; the umbra of the large spot will be totally wanting on that side next the small one. If there are little spots on each side of the large one, the umbra does not totally vanish; but appears flattened or pressed in towards the nucleus on each side. When the little spots disappear, the umbra of the large one extends itself as usual. This circumstance, he observes, may sometimes prevent the disappearance of the umbra in the manner above mentioned; so that the western umbra may disappear before the nucleus, if a small spot happens to break out on that side.

108. Mr. Wollaston observes, in the same volume, p. 337, that the appearances mentioned by Wilson are not constant; and as much depends on the accuracy of observers and the situation of the spots on the sun's orb, it is probable that the observation will continue to differ in minute particulars, till a consistent theory is formed, by which the cause of these phenomena may be explained. The spots are not confined to one part of the sun's disk; though they are generally observed about his polar regions. The paths they describe in their course over the disk are exceedingly different; sometimes being straight lines, sometimes curves, sometimes descending from the northern to the southern parts of the disk, sometimes ascending from the southern to the northern, &c. These appearances are increased by the inclination of the solar axis to the plane of the earth's orbit; from whence it arises, that the part described by a spot which is on a circle parallel to the solar equator sometimes appears oval, and at others a straight line, according to the position of the earth with respect to the sun. Besides these spots, there are others which sometimes appear very round and black, travelling over the disk of the sun in a few hours, totally unlike the others, and proceeding from an interposition of the planets Mercury and Venus between the earth and the sun. Excepting the two kinds of spots above-mentioned, however, no kind of object is discoverable on the surface of the sun, but he appears like an immense ocean of light.

109. The appearance of the Moon is very different. Many darkish spots appear in her to the naked eye; and through a telescope their number is prodigiously increased; she also appears very plainly to be more protuberant in the middle than at the edges, or to have the figure of

a globe, and not a flat circle. When the moon is gibbous or horned, the one side appears very ragged and uneven, but the other pretty well defined and circular. The spots in the moon always keep their places exactly; never vanishing, or going from one side to the other, as those of the sun do. We sometimes see more or less of the northern or southern, the eastern or western part of the disk or face; which is owing to what is called her libration. Plate IV. fig. 1, gives a representation of the full moon in her mean libration, with the principal spots according to Riccioli, Cassini, and Mayer.

110. Mercury, when looked at through telescopes magnifying about 200 or 300 times, appears equally luminous throughout his whole surface, without the least dark spot. He appears to have the same phases with the moon, being sometimes horned, sometimes gibbous, and sometimes shining almost with a round face, though not entirely full, because his enlightened side is never turned directly towards us.

111. Dr. Herschel has frequently examined Mercury with telescopes of highly magnifying powers; but he always appeared equally bright on every part of his disk, without any dark spot or ragged edge. But Schroeter, who has so much distinguished himself in this department of astronomy, affirms that he has not only seen spots, but even mountains in Mercury; and that he has succeeded in measuring the altitude of two of them. He makes the elevation of the higher of these about ten English miles and three-quarters, or about thrice the height of the highest mountain on our earth: but where so small an error in the admeasurement of the angle on which the computation is founded would entail so great a mistake in the result, we can only consider this determination of the height of the mountains of Mercury, as a strong evidence that considerable elevations do exist on that planet. By examining the variation on the appearance of Mercury's horns from day to day, Schroeter found the period of his diurnal rotation to be about twenty-four days, five hours, and twenty-eight minutes. Considerable difference of opinion exists respecting the atmosphere of this planet: if it possesses any, it certainly at the centre subtends a very small angle.

112. Venus, when viewed through a telescope, is rarely seen to shine with a full face, but has phases and changes like those of the moon, increasing, decreasing, being horned, gibbous, &c. Her illuminated part is constantly turned towards the sun; being directed towards the east when she is a morning star, and towards the west when an evening star. Her different phases were first discovered by Galileo. Dr. Herschel has published, in the Phil. Trans. for 1793, a long series of observations on this planet, from which he concludes, 1 that the planet revolves about its axis, but that the period, and the position of the axis, are uncertain; 2. that the planet's atmosphere is very considerable; 3. that there are probably hills and inequalities upon its surface, though he has not been able to see much of them, owing, perhaps, to the density of its atmosphere; and, 4. that this planet is somewhat larger than the earth, instead of being less, as former astronomers have imagined. Schroeter, also, in the Phil. Trans for 1792, published the result of a series of observations on this planet, which were begun in 1780. He infers from his observations that Venus has an atmosphere of great density and height, and that many of her mountains are five or six times as high as those of the earth.

113. Much larger and more remarkable spots have been perceived on the disk of Mars than on that of any other primary planet. By very accurate observations, Herschel has determined the proportion between the polar and equatorial diameters, and the length of the day in this planet. He has also given some good conjectures on its seasons and its atmosphere: the latter it is now ascertained to have; but though considerable, the atmosphere is not of so great an extent as the conjectures on former observations led astronomers to imagine. By very accurate observations, Dr. Herschel has determined that the proportion of his polar and equinoctial axis is as 1272 to 1355, or nearly as 15 to 16; that its time of rotation on its axis is 24 h. 22 m. and that the inclination of the axis of Mars to the orbit of the earth is 59°42′. From the great obliquity of this planet's axis of rotation, the polar regions of it are alternately presented towards the earth, and a much better opportunity is thereby offered for examining its surface than that of any other planet. This, however, is in some degree counterbalanced by the very dense atmosphere with which this planet is surrounded. It is not a little remarkable, that when either pole emerges into the light of the sun, it exhibits a very striking brilliancy, something like what would arise from its being covered with snow. The analogy between this phenomenon and what annually takes place on our own globe, is too obvious to escape notice.

114. The planet Ceres is of a red color, and appears about the size of a star of the eighth magnitude. It is surrounded by a very dense and extensive atmosphere, in which very great and sudden changes are observed to take place. The estimates that have been made of this planet's diameter are a striking instance of the difficulty of measuring the apparent diameters of such small objects. Herschel makes its diameter about 163 miles; and Schroeter about 1624, or nearly ten times as much. Its periodical revolution round the sun is accomplished in about four years, seven months, and ten days.

115. Pallas is nearly of the same size as Ceres, but not quite of so red an appearance. Its period of revolution has been computed to be about four years, ten months, and eleven days; and its diameter has been estimated at from eighty to upwards of 2000 miles. It has also an atmosphere, but of less extent than that of Ceres; but it differs from that and all other planets in the great inclination of its orbit. The planets generally circulate in planes that do not deviate much from the plane of the ecliptic; but the orbit of Pallas is inclined about thirty-five degrees, nearly five times as much as that of any other planet.

116. Juno is of a reddish color, and is surrounded by an atmosphere of considerable den-

sity. Its diameter is allowed by all observers to be less than that of either Ceres or Pallas. It differs from all other planets in the eccentricity of its orbit; being, when at its greatest distance from the sun, at double the least distance. The period of its revolution is about four years and 128 days.

117. Vesta appears like a star of the sixth magnitude, and may on a clear night be sometimes seen with the naked eye. Its light is whiter and more intense than any of the other three small planets. Its apparent diameter has been estimated at about half that of the fourth satellite of Saturn; and yet it is very remarkable that its light is so intense, that Schroeter saw it several times with his naked eye, while it requires a telescope of considerable power to see the fourth or indeed any satellite of Saturn. This planet revolves in about three years, sixty-six days, and four hours. The orbits of all these four little planets (which from their smallness have been called Asteroids) intersect each other in various places; and the points of intersection are continually varying from the changes in the places of their aphelia.

118. Jupiter has the same general appearance with Mars, only that the belts on his surface are much larger and more permanent. Their number is very variable, as sometimes only one, and at other times no fewer than eight, may be perceived. They are generally parallel to one another, but not always so; and their breadth is likewise variable, one belt having been observed to grow narrow, while another in its neighbourhood has increased in breadth, as if the one had flowed into the other. The time of their continuance is very uncertain, sometimes remaining unchanged for three months; at others, new belts have been formed in an hour or two. In some of these belts large black spots have appeared, which moved swiftly over the disk from east to west, and returned in a short time to the same place; from whence the rotation of this planet about its axis has been determined.

119. The figure of Jupiter is evidently an oblate spheroid, the longest diameter of his disk being to the shortest as thirteen to twelve. His rotation is from west to east, like that of the sun, and the plane of his equator is very nearly coincident with that of his orbit; so that there can scarcely be any difference of seasons in that planet. His rotation has been observed to be somewhat quicker in his aphelion than his perihelion.

120. The most remarkable circumstance attending this planet, is his having four moons or satellites, which constantly revolve round him at different distances. These are all supposed to move in ellipses; though the eccentricities of all of them are too small to be measured, excepting that of the fourth; and even this amounts to no more than 00·07 of its mean distance from the primary.

121. The periodic times and distances of these satellites, in semidiameters of Jupiter, as well as in English miles, the angles under which their orbits appear, as seen from the earth, at its mean distance from Jupiter, taken from the latest and most exact observations, are as follow:

No.	Periodic times.	Distances in		Angles of Orb.
		Semi-diam.	Miles.	
1	1*d*. 18*h*. 27′ 34″	$5\frac{2}{3}$	266,000	3 55″
2	3 13 13 42	$9\frac{1}{59}$	423,000	6 14
3	7 3 42 36	$14\frac{1}{13}$	676,000	9 58
4	16 16 32 9	$25\frac{3}{19}$	1,189,000	17 30

122. The nodes of these satellites are not in the same place. All of them, by reason of their immense distance, seem to keep near their primary, and their apparent motion is a kind of oscillation like that of a pendulum, going alternately from their greatest distance on one side to the greatest distance on the other, sometimes in a straight line, and sometimes in an elliptic curve. When a satellite is in its superior semicircle, or that half of its orbit which is more distant from the earth than Jupiter is, its motion appears to us direct, according to the order of the signs; but in its inferior semicircle, when it is nearer to us than Jupiter, its motion appears retrograde; and both these motions seem quicker the nearer the satellites are to the centre of the primary, slower the more distant they are, and, at the greatest distance of all, they appear for a short time to be stationary.

123. It is evident, from this account of the system of Jupiter and his satellites, that occultations of them must frequently happen by their going behind their primary, or by coming in betwixt us and it. The former takes place when they proceed towards the middle of their upper semicircle; the latter when they pass through the same part of their inferior semicircle. Occultations of the former kind happen to the first and second satellite; at every revolution, the third very rarely escapes an occultation, but the fourth more frequently by reason of its greater distance. It is seldom that a satellite can be discovered upon the disk of Jupiter, even by the best telescopes, excepting at its first entrance, when, by reason of its being more directly illuminated by the rays of the sun than the planet itself, it appears like a lucid spot upon it. Sometimes, however, a satellite, in passing over the disk, appears like a dark spot, and is easily to be distinguished. This is supposed to be owing to spots on the body of these secondary planets; and it is remarkable, that the same satellite has been known to pass over the disk at one time as a dark spot, and at another so luminous that it could not be distinguished from Jupiter himself, except at its coming on and going off.

124. To account for this phenomenon, we must say that either the spots are subject to change, or, if they be permanent like those of our moon, that the satellites at different times turn different parts of their globes towards us. Possibly both these causes may contribute to produce the phenomena just mentioned. For these reasons also both the light and apparent magnitude of the satellites are variable; for the fewer spots there are upon that side which is turned towards us, the brighter it will appear; and, as the bright side

only can be seen, a satellite must appear larger the more of its bright side it turns towards the earth, and the less so the more it happens to be covered with spots. The fourth satellite, though generally the smallest, sometimes appears bigger than any of the rest; the third sometimes seems least, though usually the largest; nay, a satellite may be so covered with spots as to appear less than its shadow passing over the disk of the primary, though we are certain that the shadow must be smaller than the body which casts it.—To a spectator placed on the surface of Jupiter, each of these satellites would put on the various appearances of the moon; but they appear to us always round, having constantly their enlightened half turned towards the earth.

125. When these moons pass through their inferior semicircles, they cast a shadow upon Jupiter, and thus cause an eclipse of the sun to his inhabitants; and in some situations this shadow may be observed going before or following the satellite. Herschel says, 'April 6th, 1780, I had a fine view of Jupiter, and saw, as soon as I looked into the telescope, without any previous notice of it, the shadow of the third satellite, and the satellite itself on the lower part of the disk. The shadow was so black and well defined, that I attempted to measure it, and found its diameter, by the micrometer, to be 1″.562.' See plate XI. fig. 2. On the other hand, in passing through their superior semicircles, the satellites may be eclipsed in the same manner as our moon is to us, by passing through the shadow of Jupiter; and this is actually the case with the first, second, and third of these bodies; but the fourth, by reason of the largeness of its orbit, passes sometimes above or below the shadow, as is the case with our moon. The beginnings and endings of these eclipses are easily seen by a telescope when the earth is in a proper situation with regard to Jupiter and the sun; but when this or any other planet is in conjunction with the sun, the superior brightness of that luminary renders both it and the satellites invisible. From the time of its first appearing after a conjunction until near the opposition, only the immersions of the satellites into his shadow, or the beginnings of the eclipses are visible; at the opposition, only the occultations of the satellites, by going behind or coming before their primary, are observable; and from the opposition to the conjunction, only the immersions, or end of the eclipses are to be seen. For let S, plate VI. fig. 8, be the sun; I Jupiter and its shadow; A and P the earth, before and after the opposition of Jupiter; $S\,p$ the path of the first satellite in the shadow; $A\,t$ a tangent to Jupiter. When the first satellite enters the shadow, the apparent distance of it from the body of Jupiter is $t\,A\,s$; but at its emersion, the line $p\,A$ passes through Jupiter, and therefore the emersion is not visible; but after opposition, the earth being at P, the emersion, and not the immersion, will be seen. The same things take place with respect to the second satellite. If $m\,u\,w$ be the path of the third satellite, $m\,A$ frequently lies without the body of Jupiter, and therefore both the immersion and emersion will be visible; the satellite disappears and re-appears again at a distance from the body of Jupiter, and on the same side.

126. This is exactly true in the first satellite, of which we can never see an immersion with its immediately subsequent emersion: and it is but rarely that they can be both seen in the second; as in order to their being so, that satellite must be near one of its limits, at the same time that the planet is near its perihelion and quadrature with the sun. With regard to the third, when Jupiter is more than 46° from conjunction with, or opposition to, the sun, both its immersions and immediately subsequent emersions are visible; as they likewise are in the fourth, when the distance of Jupiter from conjunction or opposition is 24°. It had long been suspected that the satellites of this planet revolved on their axis; and Dr. Herschel has discovered that each of them revolves about its axis in the time of its revolution round its primary; thus furnishing another striking correspondence between the satellites of the other planets and the moon, the satellite of the earth. They must be very magnificent objects to the inhabitants of Jupiter. The first of them appears to them four times larger than our moon does to us, and goes through all the changes of the moon in the short space of forty-two hours, within which period it is itself eclipsed, and causes an eclipse of the sun on the surface of Jupiter.

127. When Jupiter is in quadrature with the sun, the earth is farthest out of the line that passes through the centres of the sun and Jupiter, and therefore the shadow of the planet is then most exposed to our view: but even then the body of the planet will hide from us one side of that part of the shadow which is nearest to it, through which the first satellite passes; which is the reason that, though we see the entrance of that satellite into the shadow, or its coming out from thence, as the earth is situate on the east or west side thereof, we cannot see them both; whereas the other satellites, going through the shadow at a greater distance from Jupiter, their ingress and egress are both visible. The orbits of the satellites are inclined to the plane of Jupiter's orbit, as is evident from the unequal duration of the eclipses of the same satellite. The fourth satellite, like our own moon, is sometimes in opposition to the sun, without being eclipsed. The third and fourth satellites often disappear in the shadow, and re-appear again on the same side of Jupiter; but only the beginnings or the endings of the eclipses of the first and second satellites are visible. The relative distances of these moons from their primary, are shown in plate VII. fig. 13.

127*. We cannot close this account of Jupiter without noticing two curious results obtained by La Place, with respect to the satellites of Jupiter; results which agree with observation in a remarkable manner. The first is, that if m', m'', m''', represent the mean motions of the first, second, and third satellites respectively, the $m' + 2\,m''' - 3m''$, is always equal to nothing. The second is, that if l', l'', and l''' represent the mean longitudes of the satellites, as seen from the centre of Jupiter, then $l' - 3\,l'' + 2\,l''' =$

180°. It follows from this theorem, that the first three satellites of Jupiter can never all be eclipsed together. For if it was possible, then l, l', and l'' would be equal, and consequently $l - 3l' + 2l'' = 0$. When the second and third are eclipsed together, then $l'' = l'''$, and consequently $l' - l'' = 180$; hence, when the second and third satellites of Jupiter are eclipsed at the same time, the first is always in conjunction with Jupiter. Various other interesting consequences of this theorem might be easily deduced; but we leave the ingenious reader to make them out for himself. The relative distances of the satellites from their primaries are shown in plate VII. fig. 13.

128. Saturn, when viewed through a good telescope, makes a more remarkable appearance than any of the other planets. Galileo first discovered his uncommon shape, and from the discoveries made by him and other astronomers, it appears that this planet is surrounded by a broad thin ring, the edge of which reflects little, if any, of the sun's light to us, but the planes of the ring reflect the light in the same manner that the planet itself does. If we suppose the diameter of Saturn to be divided into three equal parts, the diameter of the ring is about seven of these parts. The ring is detached from the body of Saturn in such a manner, that the distance between the innermost part of the ring and the body is equal to its breadth. If we had a view of the planet and his ring with our eyes perpendicular to one of the planes of the latter, we should see them as in plate VII. fig. 12; but our eye is never so much elevated above either plane as to have the visual ray at right angles to it, nor indeed is it ever elevated more than about 30° above it; so that the ring being commonly viewed at an oblique angle, appears of an oval form, and through very good telescopes double, as represented, plate VII. fig. 13. and plate XI. fig. 3. When the ring appears most open, its longest diameter appears about twice the length of its shortest.

129. Both the outward and inward rim are projected into an ellipsis, more or less oblong, according to the different degrees of obliquity with which it is viewed. Sometimes our eye is in the plane of the ring, and then it becomes invisible; either because the outward edge is not fitted to reflect the sun's light, or more probably because it is too thin to be seen at such a distance. As the plane of this ring keeps always parallel to itself, that is, its situation in one part of the orbit is always parallel to that in any other part, it disappears twice in every evolution of the planet, that is about once in fifteen years; and the planet sometimes appears quite round for months together. At other times the distance betwixt the body of the planet and the ring is very perceptible; and Mr. Whiston tells us, that Dr. Clarke's father saw a star through the opening.

130. When Saturn appears round, if our eye be in the plane of the ring, it will appear as a dark line across the middle of the planet's disk; and if our eye be elevated above the plane of the ring, a shadowy belt will be visible, caused by the shadow of the ring as well as by the interposition of part of it betwixt the eye and the planet. The shadow of the ring is broadest when the sun is most elevated, but its obscure parts appear broadest when our eye is most elevated above the plane of it. When it appears double, the ring next the body of the planet appears brightest; when the ring appears of an elliptical form, the parts about the ends of the largest axis are called the ansæ. These, a little before and after the disappearing of the ring, are of unequal magnitude: the largest ansæ is longer visible before the planet's round phase, and appears again sooner than the other. In the diagram, plate VII. fig. 2, are delineated the phases of the ring from its full appearance in 1825, to its disappearance in 1832, and its full re-appearance in 1839.

131. Dr. Herschel has found that the ring is double, or that there are two concentric rings; also that it has a motion of rotation in its own plane, its axis of motion being the same as that of Saturn himself, and its periodical time 10h. 32′ 15″, 4: But he thinks it probable that the concentric rings may not revolve in the same period. Their dimensions, and the space between them, he states in the following proportion to each other:—

	miles.
Inner diameter of the same ring . .	146,345
Outside diameter of ditto	184,393
Inner diameter of the larger ring . .	190,248
Outside diameter of ditto	204,883
Breadth of the ring	20,000
Breadth of the outer ditto	7,200
Breadth of the vacant space	2,839

132. Dr. Herschel concludes, from his observations on the ring, that its structure is such as to allow it to remain permanently in its present state; nor does he think it at all probable that the ring is of that changeable nature which some persons have imagined.

133. The same excellent astronomer, from a series of observations on the belts of Saturn has concluded, that he revolves upon his axis in 10h. 16′ 0″, 4, that he has a dense atmosphere, and that his polar diameter is to his equatorial one as 10 to 11.

134. Saturn has, besides his ring, seven little secondary planets or satellites revolving round him. One of them, which till lately was reckoned the fourth in order from Saturn, was discovered by Huygens in 1655, by means of a telescope 100 feet long; and the others, viz. the first, second, third, and fifth, at different times by Cassini, between 1671 and 1684, by the help of glasses of 100 and 136 feet. The sixth and seventh have lately been discovered by Herschel, with his forty feet reflecting telescope, in 1787 and 1788. These he has called the sixth and seventh satellites, though they are nearer to Saturn than the other five; that the names may not be mistaken with regard to former observations of them.

135. The periodical revolutions and distances of these satellites expressed in semidiameters of that planet, and in English miles are as follows:

No.	Periodic Times.	Distances in Semi-diam.	Distances in Miles.	Angles of Orbs.
1	1*d*. 21*h*. 18′ 27″	4⅜	170,000	1′ 27″
2	2 17 41 22	5½	217,000	1 52
3	4 12 25 12	8	303,000	2 36
4	15 22 41 13	18	704,000	6 18
5	79 7 48 0	54	2,050,000	17 4
6	1 8 53 9	3⅝	135,000	1 14
7	0 22 40 46	2⅝	107,000	0 57

136. The first four describe ellipses like those of the ring, and are in the same plane: their inclination to the orbit is from 30° to 31°. The fifth describes an orbit inclined from 17° to 18° to the orbit of Saturn, his plane lying between the ecliptic and those of the other satellites. Dr. Herschel observes, that the fifth satellite turns round its axis once, exactly in the time in which it revolves round the planet Saturn. In this respect, like the satellites of Jupiter, it resembles our moon, which does the same thing. The proportional distances of the seven satellites formerly known to astronomers, are shown in plate VII. fig. 13.

137. The apparent form of the ring of Saturn, and the form of the orbits of his first four satellites, may easily be found by means of the following table:

ARGUMENT.			
Long. of Saturn + 13° 43′.			
Degrees.	Signs. O. VI. — +	Signs. I. VII. — +	Signs. II. VIII. — 4.	Degrees.
0	0·000	0·260	0·451	30
3	0·027	0·284	0·464	27
6	0·054	0·306	0·476	24
9	0·081	0·328	0.486	21
12	0·108	0·348	0·495	18
15	0·135	0·368	0·503	15
18	0·161	0·387	0·509	12
21	0·187	0·405	0·514	9
24	0·212	0·421	0·518	6
27	0·236	0·437	0·520	3
30	0·260	0·451	0·521	0
Degrees.	XI. V. + — Signs.	X. IV. + — Signs.	IX. III. + — Signs.	Degrees.

138. To find the shape of Saturn's ring by this table, add his longitude to 13° 43′, and with the sum as an argument enter the table, the number from which will represent the shorter diameter, the longer diameter being reckoned a thousand. This, however, requires a small correction for the planet's latitude, which correction is obtained by taking one-fourth of the latitude in minutes, and applying it to the number in the table, with the sign — when the latitude is north, but + when south.

Example. What is the shape of Saturn's ring on January 25, 1826?

By the Nautical Almanack, his longitude, on that day, is ♌ 15° 23′, and latitude 1° 26′ S. Now ♌ 15° 23′ + 13° 43′, is ♌ 29° 6′, with which, in the table, we find —·521, which corrected by + 26, one-fourth of the latitude gives —·495; or the shorter diameter is to the longer, as 495 to 1000. The sign + indicates that the most distant half of the ring is north, and — that the most distant half is south of the centre of the planet.

139. The Georgium Sidus, Herschel, or Uranus, was discovered by Herschel on March 13th 1781. From certain inequalities in the motion of Jupiter and Saturn, the existence of a planet of considerable size, without the orbit of either, had before been suspected. Its apparent magnitude, as seen from the earth, is about three seconds and a half; and as, from its distance from the sun, it shines but with a pale light, it cannot often be seen with the naked eye. Its diameter is about four times and a half that of the earth, and it revolves round the sun in 83 years, 150 days, 18 hours. The want of light in this planet, on account of its great distance from the sun, is supplied by no less than six moons, which revolve round it in different periods. But there is a remarkable peculiarity in the position of the orbits in which these moons revolve round their primary, and in the direction in which they revolve in their orbits. The orbits are nearly perpendicular to the plane of the ecliptic, and they revolve in them in a direction contrary to the order of the signs of the ecliptic. La Place, from theoretical considerations, concludes that this planet itself revolves on an axis very little inclined to the plane of the ecliptic; but there is little hope that this theoretical deduction will ever be either confirmed, or set aside, by observations on a body so very remote.

140. The periods of the revolution of the satellites, and the greatest angle of elongation of their orbits, as seen from the earth, are contained in the following table.

Satellite.	Period. D.	H.	M.	Elongation
1	5	21	25	25·5′
2	8	17	1	33·9
3	10	23	4	38·57
4	13	11	5	44·22
5	38	1	49	88·44
6	107	16	40	176·88

141. We are unacquainted with any secondary cause that could have any influence in regulating the respective distances of the planets from the sun; but there certainly does exist a relation which, from its singularity, it is difficult to believe quite accidental. This was first ob-

served by professor Bode of Berlin, who remarked, that a planet was wanting at the distance at which the new planets have been discovered, to complete the relation. According to him the distances of the planets may be expressed nearly as follows, the earth's distances from the sun being ten.

Mercury . . .	4	$= 4$
Venus . . .	$4 + 3 \times 1$	$= 7$
Earth . . .	$4 + 3 \times 2$	$= 10$
Mars	$4 + 3 \times 2^2$	$= 16$
New Planets .	$4 + 3 \times 2^3$	$= 28$
Jupiter . . .	$4 + 3 \times 2^4$	$= 52$
Saturn . . .	$4 + 3 \times 2^5$	$= 100$
Herschel . .	$4 + 3 \times 2^6$	$= 196$

142. The comets, viewed through a telescope, have a very different appearance from any of the planets. The nucleus, or star, seems much dimmer. They are to appearance surrounded with atmospheres of a prodigious size, often rising ten times higher than the nucleus, and have often likewise different phases, like the moon.

143. The head of a comet, seen through a good telescope, appears to consist of a solid globe, and an atmosphere, that surrounds it. The solid part is frequently called the nucleus; which, through a telescope, is easily distinguished from the atmosphere or hairy appearance.

144. A comet is generally attended with a blaze or tail, whereby it is distinguished from a star or planet; as it is also by its motion. Sometimes the tail only of a comet has been visible at a place where the head has been all the while under the horizon; such an appearance is called a beam. Whether the tail of a comet is caused or not by the heat of the sun, it is always observed to grow larger as it approaches, and to diminish as it recedes from that luminary.

145. If the tail were to continue of the same length, it would appear longer or shorter, according to the different views of the spectator; for if his eye be in a line, drawn through the middle of the tail lengthways, or nearly so, the tail will not be distinguished from the rest of the atmosphere, but the whole will appear round; if the eye be a little out of that line, the tail will appear short (see plate VII. fig. 8); and it is called a bearded comet, when the tail hangs down towards the horizon, as in that figure. If the tail of a comet be viewed sideways, the whole length of it is seen. It is obvious, that the nearer the eye is to the tail, the greater will be its apparent length.

146. The tails of comets often appear bent (see plate V. fig. 12, 13). This is probably owing to the resistance of the æther; which, though extremely small, may have a sensible effect on so thin a vapour as the tail consists of. This bending is seen only when the earth is not in the plane of the orbit of the comet continued. When that plane passes through the eye of the spectator, the tail appears straight. See plate V. fig. 10, 11.

147. The fixed stars, when viewed through the best telescopes, appear not in the least magnified, but rather diminished, on account, as is thought by some, that the telescope takes off that twinkling appearance they make to the naked eye; but by others more probably, that the telescope tube excludes a quantity of the rays of light, which are not only emitted from the particular stars themselves, but by many thousands more, which falling upon our eyelids and the aerial particles about us, are reflected into our eyes so strongly as to excite vibrations, not only on those points of the retina where the images of the stars are formed, but also in other points at the same distance round about. This, without the telescope, makes us imagine the stars to be much bigger than when we see them only by a few rays coming directly from them, so as to enter our eye without being intermixed with others.

148. The number of stars appear prodigiously increased through the telescope; seventy stars have been counted in the constellation called Pleiades, and no fewer than 2000 in that of Orion. The late improvements of Herschel, however, have shown the number of stars to be exceedingly beyond even what the discoveries of former astronomers would induce us to suppose. He has also shown that many, which to the eye, or through ordinary glasses, appear single, do in fact consist of two or more stars; and that the galaxy, or milky way, owes its light entirely to multitudes of small stars placed so close, that the naked eye, or even ordinary telescopes, cannot distinguish them.

149. The nebulæ, or small whitish specks, discoverable by telescopes in various parts of the heavens, are owing to the same cause. Former astronomers could only reckon 103; but Herschel has discovered upwards of 1250. He has also discovered a species of them, which he calls planetary nebulæ, on account of their brightness, and shining with a well-defined disk.

Sect. III.—Conclusions drawn from the appearances of the Sun and Planets.

150. There is an appearance in the heavens, termed semita luminosa, or the zodiacal light, which is now generally supposed to be owing to the sun's atmosphere. This was first discovered by Cassini in 1683. It is something like the milky way, a faint twilight, or the tail of a comet, thin enough to let stars be seen through it, and seems to surround the sun in the form of a lens, the plane whereof is nearly co-incident with that of the sun's equator. It is seen stretched along the zodiac, and accompanies the sun in his annual motion through the twelve signs. Each end terminates in an angle of about 21°: the extent of it in length from either of the angular points varies from 50 to 100°; it reaches beyond the orbit of Venus, but not so far as that of the earth. The breadth of it near the horizon is also various; from 12° almost to 30°: near the sun, where it may reasonably be supposed to be broadest, it cannot be seen.

151. This light is weakest in the morning, and strongest at night; disappearing in full moon-light, or in strong twilight, and therefore is not at all visible about midsummer, in places so near either of the poles as to have their twilight all the night, but may be seen in those places, in the middle of winter, both morning and evening, as it may in places under and near the equator, all the year round. In north latitude it is most conspicuous after the evening twilight,

about the latter end of February, and before the morning twilight in the beginning of October; for at those times it stands most erect above the horizon, and is therefore clearest from the thick vapours of the twilight. Besides the difference of real extension of this light in length and breadth at different times, it is diminished by the nearness of any other light in the sky; not to mention, that the extent of it will be differently determined by different spectators, according to the goodness of their eyes.

152. Cassini supposed that, as by the rotation of the sun, some gross parts are thrown up on his surface, whereof spots and nebulosities are formed; so the great rapidity wherewith the equatorial parts are moved, may throw out, to a considerable distance, a number of particles of a much finer texture, of sufficient density to reflect light. That this light was caused by an emanation from the sun, similar to that of the spots, he thought probable from the following observation: That after the year 1688, when this light began to grow weaker, no spots appeared upon the sun; whereas, in the preceding years, they were frequently seen there; and that the great inequality in the intervals between the times of the appearances of the solar spots, has some analogy to the irregular returns of weakness and strength in this light, in like circumstances of the constitution of the air, and of the darkness of the sky. But the atmosphere of no planet can extend beyond the point at which the centrifugal force arising from its evolution is equal to the force of gravity, and that distance is equal to the radius of a planet's orbit, which revolves in the same time that the sun revolves on his axis. Now the sun revolves in about 25 days, and Mercury in about eighty-eight, therefore the solar atmosphere can never extend to the orbit of Mercury, while the zodiacal light, whatever it is, certainly extends much farther. This consideration certainly militates strongly against the hypothesis of the zodiacal light being connected with the solar atmosphere.

153. He was also of opinion that this light in the zodiac, as it is subject to great increase at one time and diminution at another, may sometimes become quite imperceptible; and thought this was the case in 1665, 1672, and 1681, when he saw nothing of it, though he surveyed with great attention those parts of the heavens where, according to his theory, it must have appeared, if it had been as visible then as it was in others. He cites also passages out of several authors, both ancient and modern, which make it probable that it had been seen, both in former and latter ages, but without being sufficiently attended to, or its nature enquired into.

154. As to the solar spots, Dr. Long informs us, that 'they do not change their places upon the sun, but adhere to his surface, or float in his atmosphere, very near his body; and if there be twenty spots upon him at a time, they all keep in the same situation with respect to one another; and, as long as they last, are carried round in the same manner: by the motion of the spots therefore we learn, what we should not otherwise have known, that the sun is a globe, and has a rotation about his axis.'

155. Notwithstanding this, he tells us afterwards, 'The spots, generally speaking, may be said to adhere to the sun, or to be so near him as to be carried round upon him uniformly; nevertheless sometimes, though rarely, a spot has been seen to move with a velocity a little different from the rest; spots that were different parallels, have appeared to be carried along, not keeping always the same distance, but approaching nearer to each other; and when two spots moved in the same parallel, the hindmost has been observed to overtake and pass by the other. The revolution of spots near the equator of the sun, is shorter than of those that are more distant from it.' The apparent change of shape in the spots, as they approach the circumference of the disk, according to this author, is likewise a proof of the sun's rotation round his axis, and that they either adhere to the surface of the luminary, or are carried round his atmosphere very near his surface.

156. The time of the apparent revolution of a spot being known, the true time of its going round upon the sun may be thus found: In plate VII. fig. 3. the arc A C, which, in the month of May, the earth goes through in her orbit in 27 days 12 hours and 20 minutes, is 26° 22′; the arc *a c* being equal to A C: the apparent revolution of a spot is the whole circle *a b c d*, or 360° with the addition of the arc *a c* of 26° 22′, which makes 386° 22′: then say, as 386° 22′ is to 27 d. 12 h. 20′; so is 360° to 25 d. 15 h. 16′; the true time of the rotation of the sun as it would be seen from a fixed star.

157. The angle of intersection of the sun's equator with the ecliptic is but small, being never more, according to Scheiner, than 8°, nor less than 6°; for which reason he settled it at 7°, though Cassini makes it 7¼. This plane continued cuts the ecliptic in two opposite points, which are called the sun's nodes, being 10° of ♊, and 10° of ♑; and two points in the ecliptic, 90° from the nodes, may be called the limits. These are 10° of ♍ and 10° of ♓. When the earth is in either of these nodes, the equator of the sun, if visible, would appear as a straight line; and, by reason of the vast distance of the sun from us, all his parallels would likewise appear as straight lines; but, in every other situation of the earth, the equator and parallels of the sun would, if visible, appear as ellipses growing wider the farther the earth is from the nodes, and widest of all when the earth is in one of her limits.

158. There has been no small speculation respecting the nature and formation of the solar spots. Some have thought that the sun is an opaque body, mountainous and uneven as our earth is, covered all over with a fiery and luminous fluid; that this fluid is subject to ebbing and flowing, after the manner of our tides, so as sometimes to leave uncovered the tops of rocks or hills, which appear like black spots; and that the nebulosities about them are caused by a kind of froth. Others have imagined that the fluid which sends us so much light and heat, contains a nucleus or solid globe, wherein are several volcanoes, which, like Ætna or Vesuvius, from time to time cast up quantities of bituminous matter to the surface of the sun, and form those spots which are

seen thereon; and that, as this matter is gradually consumed by the luminous fluid, the spots disappear for a time, but are seen to rise again in the same places when these volcanoes cast up new matter. A third opinion is, that the sun consists of a fiery luminous fluid, wherein are immersed several opaque bodies of irregular shapes; and that these bodies, by the rapid motion of the sun, are sometimes buoyed or raised up to the surface, where they form the appearance of spots, which seem to change their shapes according as different sides of them are presented to the view. A fourth opinion is, that the sun consists of a fluid in continual agitation; that, by the rapid motion of this fluid, some parts more gross than the rest are carried up to the surface of the luminary, like the scum of melted metal rising up to the top in a furnace; that these scums, as they are differently agitated by the motion of the fluid, form themselves into those spots we see on the solar disk; and, besides the optical changes already mentioned, grow larger, are diminished in their apparent magnitude, recede a little from, or approach nearer to, each other, and are at last entirely dissipated by the continual rapid motion of the fluid, or are otherwise consumed or absorbed.

159. Dr. Wilson, in the sixty-fourth volume of the Philosophical Transactions, advances a new opinion, viz. that they are hollows in the surface of the luminary. On this supposition he offers some queries and conjectures concerning the nature of the sun himself. He asks, Whether it is not reasonable to think, that the vast body of the sun is made up of two kinds of matter very different in their qualities; that by far the greatest part is solid and dark; and that this dark globe is encompassed with a thin covering of that resplendant substance, from which the sun would seem to derive the whole of his vivifying heat and energy?

160. This, if granted, will afford a satisfactory solution of the appearance of spots; because, if any part of this resplendant surface shall be by any means displaced, the dark globe must necessarily appear; the bottom of the cavity corresponding to the nucleus, and the shelving sides to the umbræ. The shining substance, he thinks, may be displaced by the action of some elastic vapour generated within the substance of the dark globe. This vapour swelling into such a volume as to reach up to the surface of the luminous matter, would thereby throw it aside in all directions: and as we cannot expect any regularity in the production of such a vapour, the irregular appearance and disappearance of the spots is by that means accounted for; as the reflux of the luminous matter must always occasion the dark nucleus gradually to decrease, till at last it becomes indistinguishable from the rest of the surface.

161. But an objection occurs, that, on this supposition, the nucleus of a spot, whilst on the decrease, should always appear nearly circular, by the gradual descent of the luminous matter from all sides to cover it. To this Dr. Wilson replies, that in all probability the surface of the dark globe is very uneven and mountainous, which prevents the regular reflux of the shining matter; and this, he thinks, is rendered very probable by the enormous mountains and cavities which are observed on the moon; and why, says he, may there not be the same on the surface of the sun? He thinks his hypothesis also confirmed by the dividing of the nucleus into several parts, which might arise from the luminous matter flowing in different channels in the bottom of the hollow.

162. The appearance of the umbræ after the nucleus is gone, he thinks, may be owing to a cavity remaining in the luminous matter, though the dark globe is entirely covered. As to a motion of the spots, distinct from what they are supposed to receive from the rotation of the sun round his axis, he says he never could observe any, except what might be attributed to the enlargement or diminution of them when in the neighbourhood of one another. 'But,' says he, 'what would farther contribute towards forming a judgment of this kind, is the apparent alteration of the relative place, which must arise from the motion across the disk on a spherical surface; a circumstance which I am uncertain if it has been sufficiently attended to.'

163. Dr. Wilson's hypothesis is further confirmed by the disappearance of the umbræ on the sides of spots contiguous to one another; as the action of the elastic vapour must necessarily drive the luminous matter away from each, and thus as it were accumulate it between them, so that no umbræ can be perceived. As to the luminous matter itself, he conjectures, that it cannot be any very ponderous fluid, but that it rather resembles a dense fog which broods on the surface of the sun's dark body.

164. Dr. Wilson's general conclusion is, that, 'According to the view of things given in the foregoing queries, there would seem to be something very extraordinary in the dark and unignited state of the great internal spot of the sun. Does not this, (he asks), seem to indicate that the luminous matter that encompasses it derives not its splendor from any intensity of heat? For, if this were the case, would not the parts underneath, which would be perpetually in contact with that glowing matter, be heated to such a degree as to become luminous and bright? At the same time it must be confessed, that although the internal globe was in reality much ignited, yet when any part of it forming the nucleus of a spot is exposed to our view, and is seen in competition with a substance of such amazing splendor, it is no wonder that an inferior degree of light, should in these cases, be unperceivable.

165. As to the moon, it is allowed on all hands, that there are prodigious inequalities on her surface. This is proved by looking at her through a telescope, at any other time than when she is full; for then there is no regular line bounding light and darkness; but the confines of these parts appear as it were toothed and cut with innumerable notches and breaks; and even in the dark part, near the borders of the lucid surface, there are seen some small spaces enlightened by the sun's beams. Upon the fourth day after new moon, there may be perceived some shining points like rocks or small islands within the dark

body of the moon; and not far from the confines of light and darkness, there are observed other little spaces which join to the enlightened surface, but run out into the dark side, which by degrees change their figure, till at last they come wholly within the illuminated space, and have no dark parts round them at all. Afterwards many more shining spaces are observed to arise by degrees, and to appear within the dark side of the moon, which, before they drew near to the confines of light and darkness, were invisible, being without any light, and totally immersed in the shadow. The contrary is observed in the decreasing phases, where the lucid spaces which joined the illuminated surface by degrees recede from it; and, after they are quite separated from the confines of light and darkness, remain for some time visible, till at last they also disappear. Now it is impossible that this should be the case, unless these shining points were higher than the rest of the surface, so that the light of the sun may reach them.

166. Astronomers have endeavoured to measure the height of these lunar mountains, in the following manner. Let E C D, Plate VII. fig. 6, be the hemisphere of the moon illuminated by the sun; E C D the diameter of the circle bounding light and darkness, and A the top of a hill within the dark part when it first begins to be illuminated. Observe with a telescope the proportion of the right line A E, or the distance of the point A from the lucid surface to the diameter of the moon E D; and because in this case the ray of light E S touches the globe of the moon, A E C will be a right angle, and therefore in the triangle A E C having the two sides A E and E C, we can find the third side A C; from which deducting B C or E C, there will remain A B the height of the mountain. By this mode of measuring, which would be just if the line A E could be taken accurately, the height of St. Catherine would be nearly 8½ miles, if according to Riccioli its top was about a sixteenth part of the moon's diameter distant from the confines of the lucid surface. But by the more accurate observations and just calculations of Herschel, this disproportionate height appears to be ill founded, and the generality of the lunar mountains do not exceed half a mile in perpendicular elevation. He thus calculates their heights: Let S L M or *s l m*, fig. 1, be a line drawn from the sun to the mountain, touching the moon at L or *l*, and the mountain at M or *m*. Then, to an observer at E or *e*, the lines L M, *l m*, will not appear of the same length, though the mountain should be of an equal height; for L M will be projected into *on*, and *lm* into O N. But these are the quantities that are taken by the micrometer when we observe a mountain to project from the line of illumination. From the observed quantity *o n*, when the moon is not in her quadrature, to find L M, we have the following analogy. The triangles *o* O L, *r* M L are similar; therefore L *o* : L O : : L *r* : L M, or $\frac{L\,O \times o\,n}{L\,o} = L\,M$: but L O is the radius of the moon, and L *r* or *on* is the observed distance of the mountain's projection; and L *o* is the sine of the angle R O L = *o* L S; which we may take to be the distance of the sun from the moon without any material error, and which therefore we may find at any given time from an ephemeris.

167. Some modern astronomers have discovered a still greater similarity between the lunar mountains and those of our earth; viz. that some of them are really volcanoes, and emit fire, as ours do. An appearance of this kind was discovered some years ago by Ulloa, in an eclipse of the sun. It was a small bright spot like a star near the margin of the moon, and which he at that time supposed to have been a hole with the sun's light shining through it. Succeeding observations, however, have induced astronomers to attribute appearances of this kind to the eruption of volcanic fire: and Herschel has particularly observed several eruptions of the lunar volcanoes, and similar appearances have been more recently noticed by that acute and accurate observer, captain Henry Kater.

168. Many conjectures have been formed respecting the nature of the moon's substance; some have imagined, that, besides the light reflected from the sun, the moon has also some obscure light of her own, by which she would be visible without being illuminated by the sun-beams. In proof of this it is urged, that during the time of even total eclipses the moon is still visible, appearing of a dull red color, as if obscured by a great deal of smoke. In reply to this, it has been advanced, that this is not always the case; the moon sometimes disappearing totally in the time of an eclipse, so as not to be discernible by the best glasses, while little stars of the fifth and sixth magnitudes were distinctly seen as usual; and when the moon is visible in a total eclipse, a sufficient reason may be assigned for this appearance from the refraction of the sun's rays through our atmosphere, which are reflected back to the earth by the otherwise dark surface of the moon.

169. Various speculations have also been indulged concerning the spots on the moon's surface. Some philosophers have been so taken with the beauty of the brightest places observed in her disk, that they have imagined them to be rocks of diamonds; and others have compared them to pearls and precious stones. Keill, and the greater part of astronomers are now of opinion, that these are only the tops of mountains, which, by reason of their elevation, are more capable of reflecting the sun's light than others which are lower. The duskish spots, he says, cannot be seas, nor any thing of a liquid substance; because, when examined by the telescope, they appear to consist of an infinity of caverns and empty pits, whose shadows fall within them, which can never be the case with seas, or any liquid substance; but even within these spots, brighter places are also to be observed; which, according to his hypothesis, ought to be the points of rocks standing up within the cavities.

170. The existence of the lunar atmosphere, so long a subject of controversy, is now decidedly set at rest. Schroeter of Lilienthal has observed phenomena precisely analogous to the twilight, and which can in no way be accounted for independently of atmospheric refraction. He has also, as he says, observed several obscurations, and returning serenity, and other changes in the lunar atmosphere. In the occultation of

Jupiter by the moon on April 5th, 1824, Mr. Ramage of Aberdeen, and Captain John Ross, R. N. at Stranraer, with each one of Mr. Ramage's splendid reflecting telescopes, observed the disk of Jupiter to be decidedly distorted at the time of its approach to the edge of the moon; and precisely similar appearances were noticed by Mr. Comfield of Northampton, and Mr. Wallis, lecturer on astronomy, on the occultation of Saturn by the moon, on October 30th, 1825.

This question, therefore, having been settled by the most satisfactory of all tests, we deem it unecessary to enter into the arguments which were wont to be advanced on either side of the question, before sufficient data were obtained for determining it in any way.

171. It has been a question whether the moon and other planets are inhabited. The answers given to it in the negative depend on the position, that human beings could not exist in any of the planets on account of their distance from the sun, and consequent inequality of heat to that which the inhabitants of the earth experience; and the want of an atmosphere in the moon, or the rarity of it, would as effectually preclude that body from being a fit habitation for man. But in reply it is argued, and with reason, that the same power which could make the earth a fit habitation for the animals upon it, could also adapt the organs of other animals to their various situations in the planets; and as the earth teems with life of all kinds, it is probable, that, as there is so great an analogy between it and the planets in other respects, the same analogy prevails with respect to life and inhabitants.

Sect. IV. Conjectures and Conclusions respecting Comets.

172. None of the celestial bodies have given rise to more speculation and conjecture than comets. Their strange appearance has in all ages been a matter of terror to the vulgar, who uniformly have looked upon them as bad omens, and forerunners of war, pestilence, &c. Others, less superstitious, supposed them to be meteors raised in the higher regions of the air.

Some part of the modern doctrine concerning them, however, was received in the ancient Italic and Pythagorean schools; for they held them to be so much of the nature of planets that they had their periodical times of appearing; that they were out of sight for a long time, while they were carried aloft at an immense distance from the earth, but became visible when they descended into the lower regions of the air, and thus were nearer to us.

It would be as endless as useless to detail the various conjectures which in the dark ages were formed respecting the nature of comets; and the various extravagant postulata by which each theorist sought to reconcile their appearances with his explanation. Aristotle conceived them to be meteoric bodies; Kepler huge animals, that swam round the sun like fishes; and Bodin imagined that they are spirits, which, having long dwelt on the earth, are about to be translated to the skies.

A celebrated comet, however, which appeared in 1577, enabled Tycho Brahe to determine that, at any rate, these bodies were at an immense distance; as from many careful observations he found that that comet had no sensible diurnal parallax; and Kepler discovered, from his own observations and those of his master, Tycho, that the comets did not, as had been supposed, move in straight lines, but in paths concave towards the sun, and he conceived that their orbits were parabolas.

At length, from observations made on the great comet of 1680, Sir Isaac Newton found that these bodies, like the planets, move round the sun in elliptical orbits. This comet was seen for twenty-one days in its passage towards the sun, and for nearly three months as it receded from that luminary. The most careful observations were made to determine its place, and the conclusions deduced from these observations are confirmed by observations made on all that have been well-observed since.

173. It has been remarked that a greater number of comets are seen towards the sun than in the opposite hemisphere; the reason of which will easily appear from fig. 9, plate VII. wherein S represents the sun, E the earth, A B C D the sphere of the fixed stars; and because comets neither reflect light enough to be visible, nor emit tails conspicuous enough to attract our notice, till they come within the planetary regions, commonly a good way within the sphere of Jupiter; let K L M N be a sphere concentric to the sun, at such a distance from him, that no comet can be seen by us till it come within that distance: through E draw the plane B D perpendicular to S E, which will divide the sphere K L M N into two hemispheres, one of which, BCD, is towards the sun, the other D A B, opposite. Now it is manifest, that the spherical portion L M N, which is in the hemisphere B C D towards the sun, is larger than the portion N K L in the hemisphere opposite to him; and consequently a greater number of comets will appear in the hemisphere B C D than in that marked D A B.

174. Although the orbs of all comets are very eccentric ellipses, there are vast differences among them. Excepting Mercury and Pallas, there are no great differences among the planets either as to the eccentricity of their orbits, or the inclination of their planes; but the planes of some comets are almost perpendicular to others, and some of their ellipses are much wider than others. The narrowest ellipsis of any comet hitherto observed was that of 1680. There is also a much greater inequality in the motion of the comets than of the planets; the velocity of the former being incomparably greater in their perihelion than in their aphelion; but the planets are but very little accelerated.

175. There is now no question among astronomers, that comets are opaque bodies enlightened by the sun. Their perihelion distances from the sun are exceedingly various, some being not more than one-fifth, and others upwards of four-times the mean distance of the earth. Their diameters too differ very greatly. Their apparent diameters of course vary with their distance; and some have supposed that those apparently preternatural darknesses, of

which several are recorded in history, may have been caused by the interposition of a comet between the earth and the sun, at a time when, from its proximity to the earth, its apparent diameter was greater than the sun's, and when its apparent motion was in the same direction as the sun's. The diameter of the comet of 1744, when at the distance of the sun from us, was about one minute, hence its real diameter was about three times that of the earth. The diameter of their atmosphere is however often ten or fifteen times as great as that of the nucleus.

176. The tails of comets have given rise to various conjectures; but though it is apparent that they are in some way connected with the sun, we know as yet absolutely nothing of either their cause, or their uses. Perhaps the most rational conjecture that has been made respecting them is that of Euler, who imagines that on a comet's approaching the sun the impulse of the solar rays may drive the finer particles of the comet's atmosphere in a direction of course opposite to the sun, and that these particles become visible in the shape of a tail, which, from the resistance it may meet with moving obliquely through the æther, may put on that curved appearance which the tails are often observed to assume. If this hypothesis were true, we might conceive that the velocity of a comet may be so great, that a tail may be produced opposite to the sun before the previously formed one can overtake it. This agrees with what is recorded of the comet of 1744, which is said to have had several tails when near its perihelion.

177. Mr. Whiston has conjectured that the deluge, of which, in the sacred writings, we have the only authentic record, but of which the annals of most nations have traditionary accounts, was produced by the near approach of a comet, whose atmosphere had been attracted by the earth; and he further surmises, that the final catastrophe foretold in the scriptures may be produced by the approach of a comet prodigiously heated in its perihelion. We pretend not, however, on such subjects as these, to penetrate the secrets of Almighty wisdom, which can produce its own ends, by means of which we have no conception.

178. On looking over the catalogue of ancient comets, Dr. Halley found that there was considerable similarity in the elements of the orbits, and in the periodic times of three which appeared in 1531, 1607, and 1682; and he strongly surmised that these three comets had only been several returns of the same comet, which might be expected to return again about the end of 1758 or the beginning of 1759. Clairault applied himself with great diligence and success to the investigation of the elements of these comets, which he too conceived to be the same; and he predicted that it would be in perihelion on April 13th, 1759, and it actually was in its perihelion on the 13th of March, differing about a month from the predicted time. This comet may be expected again in 1835.

179. Clairault found, by applying the principles of physics to the computation of this comet's motion, that its last period was lengthened about 100 days by the action of Saturn, and about 518 days by that of Jupiter. And, as we know not how the orbits of these eccentric bodies may be affected by their mutual attractions among themselves, it is probable that many ages will elapse before any very accurate knowledge of the periodic times of many of them will be obtained. Much attention however is at present paid to this branch of astronomy; and, the consequence has been, that a visit of a comet to our regions is found to be an event of very frequent occurrence. In the year 1825 not less than five different comets were observed.

180. The Astronomical Society of London, at their anniversary in February 1824, voted a gold medal to M. Rumker, for his re-discovery of a comet, which was first discovered by M. Guke, and has been called by his name. This comet had been seen, in an intervening return in 1818, by M. Pons, and the astronomical society voted him a silver medal as a token of their approbation of the industry and talent with which he has applied to this interesting branch of the science.

In connexion with this subject too, we cannot help noticing a most profound and ingenious paper by M. Masotti, on the resistance of æther, as deduced from the irregularities of the motion of Guke's comet.

Sect. V.—Conjectures and Conclusions respecting the Fixed Stars.

181. Astronomers have supposed the innumerable multitude of fixed stars to be so many suns, each of which is attended by a certain number of planets or habitable worlds like our own, as well as visited by comets. The strongest argument for this hypothesis is, that the stars cannot be magnified by a telescope on account of their immense distance; whence it is concluded that they shine by their own light, and are therefore so many suns; each of which we may suppose to be equal, if not superior, in lustre and magnitude to our own. They are not supposed to be at equal distances from us, but to be more remote in proportion to their apparent smallness. This supposition is necessary to prevent any interference of their planets, and thus there may be as great a distance between a star of the first magnitude and one of the second apparently close to it, as between the earth and the fixed stars first mentioned.

182. Others object, that the disappearance of some of the fixed stars is a demonstration that they cannot be suns, as it would be in the highest degree absurd to think that God would create a sun which might disappear of a sudden, and leave its planets and their inhabitants in endless night. But this argument will have no weight with those who believe in the doctrines of revelation; which assures us that our world will come to an end, and that our sun will be deprived of his light; and consequently that all the planets which circulate around him will be involved in darkness.

183. In short, there is nothing inconsistent with either scripture or reason in supposing, that while infinite space is universally filled with illuminating suns and circulating planets, each world, or rather each solar system of worlds, has

its own periods of creation, duration, and final consummation; as we are assured ours has had, and will have. And the discoveries of astronomers respecting old stars disappearing, and new ones being observed, are perfectly consistent with the doctrines of creation and dissolution, which all Christians profess to believe, with regard to our own solar system and the globe we inhabit.

184. Some, however, have thought that the variable stars which disappear for a time, are planets, which are only visible during some part of their course. But this their apparent immobility, notwithstanding their decrease of lustre, will not allow us to think. Some have imagined that one side of them may be naturally much darker than the other, and when by the revolution of the star upon its axis, the dark side is turned towards us, the star becomes invisible, and for the same reason, after some interval, resumes its former lustre.

185. M. Maupertius is of opinion that some stars, by their prodigiously quick rotations on their axes, may not only assume the figures of oblate spheroids, but that by the great centrifugal force arising from such rotations, they may become of the figures of mill-stones, or be reduced to flat circular planes, so thin as to be quite invisible when their edges are turned towards us; as Saturn's ring is in such positions. But when very eccentric planets or comets go round any flat star, in orbits much inclined to its equator, the attraction of the planets or comets in their perihelions must alter the inclination of the axis of that star; on which account it will appear more or less large and luminous, as its broad side is more or less turned towards us. And thus he imagines we may account for the apparent changes of magnitude and lustre in those stars, and likewise for their appearing and disappearing.

186. In the Philosophical Transactions for 1783, Mr. Mitchell, in proposing a method of determining the distance, magnitude, &c. of the fixed stars, by the diminution of the velocity of their light, should any such thing be discovered, supposes that by far the greater part, if not all of them, are systems of stars so near each other, as probably to be liable to be affected sensibly by their mutual gravitation; and that it is therefore not unlikely that the periods of the revolutions of some of these about their principals (the smaller ones being upon this hypothesis to be considered as satellites to the others), may some time or other be discovered. And the recent observations of Mr. Herschel and Mr. South on double stars, when compared with those made by Sir William Herschel many years ago, show decidedly that many of these double stars do certainly revolve round each other.

187. Herschel, improving on Mitchell's idea of the fixed stars being collected into groups, and assisted by his own observations with the extraordinary telescopic powers already mentioned, has suggested a theory concerning the construction of the universe entirely new and singular. It had been the opinion of former astronomers, that our sun, besides occupying the centre of the system which properly belongs to him, occupied also the centre of the universe: but Herschel is of a different opinion.

188. The observations on which this theory is founded, were made with a Newtonian reflector of twenty feet focal length, and an aperture of eighteen inches. With this powerful telescope he first began to survey the Via Lactea, and found that it completely resolved the whitish appearance into stars, which the telescopes he formerly used had not light enough to do. The portion he first observed was that about the hand and club of Orion; in which he found an astonishing multitude of stars, whose number he endeavoured to estimate by counting many fields (or apparent spaces of the heavens, which he could see at once through his telescope), and computing from a medium of these how many might be contained in a given portion of the milky way. In the most vacant place to be met with in that neighbourhood, he found 63 stars; other six fields contained 110, 60, 70, 90, 70, and 74 stars; a medium of all which gave 79 for the number of stars to each field. Thus he found that by allowing 15′ for the diameter of his field of view, a belt of 15° long and 2° broad, which he had often seen pass before his telescope in an hour's time, could not contain less than 50,000 stars, large enough to be distinctly numbered: besides which he suspected twice as many more, which could be seen only now and then by faint glimpses, for want of sufficient light.

189. The doctor's success within the milky way soon induced him to turn his telescope to the nebulous parts of the heavens, of which an accurate list had been published in the Connoissance des Temps for 1783 and 1784. Most of these yielded to a Newtonian reflector of twenty feet focal distance, and twelve inches aperture; which plainly discovered them to be composed of stars, or at least to contain stars, and to show every other indication that they consisted of them entirely.

190. 'The nebulæ,' says he, 'are arranged into strata, and run on to a great length; and some of them I have been able to pursue, and to guess pretty well at their form and direction. It is probable enough that they may surround the whole starry sphere of the heavens not unlike the milky way, which undoubtedly is nothing but a stratum of fixed stars; and as this latter immense starry bed is not of equal breadth or lustre in every part, nor runs on in one straight direction, but is curved, and even divided int two streams along a very considerable portion of it, we may likewise expect the greatest variety in the strata of the clusters of stars and nebulæ.

191. 'One of these nebulous beds is so rich, that in passing through a section of it in the time of only thirty-six minutes, I have detected no less than thirty-one nebulæ, all distinctly visible upon a fine blue sky. Their situation and shape, as well as condition, seem to denote the greatest variety imaginable. In another stratum, or perhaps a different branch of the former, I have often seen double and treble nebulæ variously arranged; large ones with small seeming attendants; narrow, but much extended lucid nebulæ or bright dashes; some of the shape of a fan, resembling an electric brush issuing from

a lucid point; others of the cometic shape, with a seeming nucleus in the centre, or like cloudy stars, surrounded with a nebulous atmosphere; a different sort again contain a nebulosity of the milky kind, like that wonderful inexplicable phenomenon about θ Orionis; while others shine with a fainter mottled kind of light, which denotes their being resolvable into stars.

192. 'It is very probable that the great stratum called the milky way, is that in which the sun is placed, though perhaps not in the very centre of its thickness. We gather this from the appearance of the galaxy, which seems to encompass the whole heavens, as it certainly must do if the sun is within the same. For suppose a number of stars arranged between two parallel planes, indefinitely extended every way, but at a given considerable distance from one another, and calling this a sidereal stratum; an eye placed somewhere within it will see all the stars in the direction of the planes of the stratum projected into a great circle, which will appear lucid on account of the accumulation of the stars, while the rest of the heavens at the sides will only seem to be scattered over with constellations, more or less crowded according to the distance of the planes, or number of stars contained in the thickness or sides of the stratum.

193. 'From appearances,' Dr. Herschel continues, 'we may infer that the sun is most likely placed in one of the great strata of the fixed stars, and very probably not far from the place where some smaller stratum branches out from it. This supposition will satisfactorily, and with great simplicity, account for all the phenomena of the milky way; which, according to this hypothesis, is no other than the appearance of the projection of the stars contained in this stratum and its secondary branch. As a farther inducement to look on the galaxy in this point of view, let it be considered that we can no longer doubt of its whitish appearance arising from the mixed lustre of the numberless stars that compose it. Now should we suppose it to be an irregular ring of stars, in the centre nearly of which we must then suppose the sun to be placed, it will appear not a little extraordinary that the sun, being a fixed star like those which compose this imagined ring, should just be in the centre of such a multitude of celestial bodies, without any apparent reason for this singular distinction; whereas, on our supposition, every star in this stratum, not very near the termination of its length or height, will be so placed as also to have its own galaxy, with only such variations in the form and lustre of it as may arise from the particular situation of each star.'

194. A continued series of observations confirmed Dr. Herschel in these opinions; and in a succeeding paper he has given a sketch of his ideas of the interior construction of the heavens: 'That the milky way,' says he, 'is a most extensive stratum of stars of various sizes, admits no longer of the least doubt; and that our sun is one of the heavenly bodies belonging to it is as evident. I have now viewed and gauged this shining zone in almost every direction, and find it composed of shining stars, whose number, by the account of those gauges, constantly increases and decreases in proportion to its apparent brightness to the naked eye.

195. 'But, in order to develop the ideas of the universe that have been suggested by my late observations, it will be best to take the subject from a point of view at a considerable distance both of space and time. Let us then suppose numberless stars of various sizes scattered over an indefinite portion of space, in such a a manner as to be almost equally distributed through the whole. The laws of attraction, which no doubt extend to the remotest regions of the fixed stars, will operate in such a manner as most probably to produce the following remarkable effects:

196. 1. It will frequently happen that a star, being considerably larger than its neighbouring ones, will attract them more than they will be attracted by others that are immediately around them; by which means they will be in time as it were condensed about a centre; or in other words, form themselves into a cluster of stars of almost a globular figure, more or less regularly so, according to the size and original distance of the surrounding stars. The perturbations of the mutual attractions must undoubtedly be very intricate, as we may easily comprehend by considering what Sir Isaac Newton has said (Princip. lib. i. prob. 38, et seq.): but in order to apply this great author's reasoning, of bodies moving in ellipses, to such as are here for a while supposed to have no other motion than what their mutual gravity has imparted to them, we must suppose the conjugate axes of these ellipses indefinitely diminished, whereby the ellipses will become straight lines.

197. 2. The next case, which will happen almost as frequently as the former, is where a few stars, though not superior in size to the rest, may chance to be rather nearer each other than the surrounding ones; for here also will be formed a prevailing attraction in the combined centre of gravity of them all, which will occasion the neighbouring stars to draw together; not, indeed, so as to form a regular globular figure, but, however, in such a manner as to be condensed towards the common centre of gravity of the whole irregular cluster. And this construction admits of the utmost variety of shapes, according to the number and situation of the stars which first gave rise to the condensation of the rest.

198. 3. From the composition and repeated conjunction of both the foregoing forms, a third may be derived, when many large stars, or combined small ones, are situated in long extended regular or crooked rows, hooks, or branches; for they will also draw the surrounding ones so as to produce figures of condensed stars coarsely similar to the former, which gave rise to these condensations.

199. 4. We may likewise admit of still more extensive combinations; when, at the same time that a cluster of stars is forming in one part of space, there may be another collecting in a different, but perhaps not far distant, quarter, which may occasion a mutual approach towards their common centre of gravity.

200. 5. In the last place, as a natural consequence of the former cases, there will be great cavities or vacancies formed by the retreat of the stars towards the various centres which attract them; so that, upon the whole, there is evidently a field of the greatest variety for the mutual and combined attractions of the heavenly bodies to exert themselves in.

201. From this theoretical view of the heavens, which has been taken from a point not less distant in time than in space, we will now retreat to our own retired station, in one of the planets attending a star in its great combination with numberless others; and in order to investigate what will be the appearances from this contracted situation, let us begin with the naked eye. The stars of the first magnitude, being in all probability the nearest, will furnish us with a step to begin our scale. Setting off, therefore, with the distance of Sirius or Arcturus, for instance, as unity, we will at present suppose, that those of the second magnitude are at double, those of the third at treble, the distance, &c. Taking it for granted, then, that a star of the seventh magnitude (the smallest supposed visible with the naked eye) is about seven times as far as one of the first, it follows, that an observer who is enclosed in a globular cluster of stars, and not far from the centre, will never be able with the naked eye to see to the end of it; for since, according to the above estimations, he can only extend his view to above seven times the distance of Sirius, it cannot be expected that his eyes should reach the borders of a cluster which has perhaps not less than fifty stars in depth everywhere around him. The whole universe to him, therefore, will be comprised in a set of constellations richly ornamented with scattered stars of all sizes: or, if the united brightness of a neighbouring cluster of stars should, in a remarkably clear night, reach his sight, it will put on the appearance of a small, faint, whitish, nebulous cloud, not to be perceived without the greatest attention.

202. Let us suppose him placed in a much extended stratum, or branching cluster of millions of stars, such as may fall under the third form of nebulæ already considered. Here also the heavens will not only be richly scattered over with brilliant constellations, but a shining zone or milky way will be perceived to surround the whole sphere of the heavens, owing to the combined light of those stars which are too small, that is, too remote to be seen. Our observer's sight will be so confined, that he will imagine this single collection of stars, though he does not even perceive the 1000th part of them, to be the whole contents of the heavens.

203. Allowing him now the use of a common telescope, he begins to suspect, that all the milkiness of the bright path which surrounds the sphere may be owing to stars. He perceives a few clusters of them in various parts of the heavens, and finds also that there are kinds of nebulous patches: but still his views are not extended to reach so far as to the end of the stratum in which he is situated; so that he looks upon these patches as belonging to that system, which to him seems to comprehend every celestial object. He now increases his power of vision; and, applying himself to a close observation, finds that the milky way is indeed no other than a collection of very small stars. He perceives, that those objects which had been called nebulæ, are evidently nothing but clusters of stars. Their number increases upon him; and when he resolves one nebula into stars, he discovers ten new ones which he cannot resolve. He then forms the idea of immense strata of fixed stars, of clusters of stars, and of nebulæ; till going on with such interesting observations, he now perceives, that all these appearances must naturally arise from the confined situation in which we are placed. Confined it may justly be called, though in no less a space than what appeared before to be the whole region of the fixed stars, but which now has assumed the shape of a crookedly branching nebula; not indeed one of the least, but perhaps very far from being the most considerable, of those numberless clusters that enter into the construction of the heavens.

204. Dr. Herschel shows, that this theoretical view of the heavens is perfectly consistent with facts, and seems to be confirmed by a series of observations. 'Upon the whole,' says he, 'I believe it will be found, that the foregoing theoretical view, with all its consequential appearances, as seen by an eye enclosed in one of the nebulæ, is no other than a drawing from nature, wherein the features of the original have been closely copied: and I hope the resemblance will not be called a bad one, when it shall be considered how very limited must be the pencil of an inhabitant of so small and retired a portion of an indefinite system, in attempting the picture of so unbounded an extent.'

205. The doctor having determined that the visible system of nature, by us called the universe, consisting of all the celestial bodies, and many more than can be seen by the naked eye, is only a group of stars or suns with their planets, constituting one of those patches called a nebula, and perhaps not one 10,000th part of what is really the universe, he goes on to delineate the figure of this vast nebula, which he is of opinion may now be done; and for this purpose, he gives a table, calculating the distance of the stars which form its extreme boundaries, or the length of the visual ray in different parts, by the number of stars contained in the field of his telescope at different times. He then proceeds to offer some thoughts on the origin of the nebulous strata of the heavens; in doing which, he gives some hints concerning the antiquity of them; conjectures which, though abundantly ingenious, are of too fanciful a nature to justify us in detailing them.

206. An objection naturally occurred in the course of Herschel's observations and enquiries concerning the structure of the heavens, that if the different systems were formed by the mutual attractions of the stars, the whole would be in danger of destruction by their falling one upon another.

207. Several circumstances, however, he says, manifestly tend to a general preservation. The indefinite extent of the sidereal heavens, must produce a balance that will effectually secure all the great parts of the whole from approaching

to each other. 'There remains then (says he) only to see how the particular stars belonging to separate clusters are prevented from rushing on to their centres of attraction.' This he supposes may be done by projectile forces; 'the admission of which will prove such a barrier against the seeming destructive power of attraction, as to secure from it all the stars belonging to a cluster, if not for ever, at least for millions of ages. Besides, we ought perhaps to look upon such clusters, and the destruction of a star now and then in some thousands of ages, as the very means by which the whole is preserved and renewed. These clusters may be the laboratories of the universe, wherein the most salutary remedies for the decay of the whole are prepared.'

208. The existence of such projectile forces is rendered probable, from the apparent changes of position of certain stars; and from a comparison of the best modern observations with the most accurate of former times, there appears to have been a real change in the places of some of them. The Bull's Eye, Sirius, and Arcturus, are now found to be half a degree more southerly than the ancients reckoned them; and the bright star in the shoulder of Orion, has, in Ptolemy, almost a whole degree of latitude more southerly than at present. And, as we have already noticed, such remarkable changes have been observed both in the positions and distances of so many of the double stars, that we are constrained to admit that nothing created is stable. Appearances, indeed, indicate that our own system is in motion towards a point of the heavens whose right ascension is about 250° and declination about 50° north. Whether this motion is one of rotation about some distant centre, or of direct motion, must be left to time and accurate observation to determine. The consequence of this motion, however, is, certain apparent motions of several of the fixed stars, entirely unconnected with the phenomena arising either from the earth's figure, or its revolution round the sun. Dr. Maskelyne has given a table containing the proper motions, both in right ascension and declination of thirty six of the principal fixed stars. We subjoin this table as one of great importance to the practical astronomer.

209. Table of the annual proper motions of thirty-six fixed stars, in right ascension and declination:

Names of the Stars.	Annual Proper Motion.	
	In right ascension.	In declination.
	″	″
γ Pegasi	— 0·09	— 0·15 N.
α Arietes	+ 0·10	+ 0·07 S.
α Ceti	— 0·12	— 0·08 N.
Aldebaran	+ 0·03	+ 0·12 S.
Capella	+ 0·21	+ 0·44 S.
Rigel	— 0·03	— 0·16 N.
β Tauri	+ 0·01	+ 0·10 S.
α Orion	+ 0·01	— 0.13 N.
Sirius	— 0·42	+ 1·04 S.
Castor	— 0·15	+ 0·44 S.
Procyon	— 0·80	+ 0·95 S.
Pollux	— 0·74	0·00
α Hydræ	— 0·09	— 0·14 N.
Regulus	— 0·22	— 0.08 N.
β Leoni	— 0·57	+ 0·07 S.
β Virginis	+ 0·74	+ 0·24 S.
Spicæ Virgini	— 0·02	— 0·19 N.
Arcturus	— 0·26	+ 1·72 S.
1 α Libræ	— 0·11	— 0·18 N.
2 α Libræ	— 0·11	— 0·15 N.
α Cor. Borealis	+ 0·26	+ 0·03 S.
α Serpentis	+ 0·11	— 0 19 N.
Antares	0·00	— 0·26 N.
α Herculis	0·00	— 0·23 N.
α Ophiuchi	+ 0·06	— 0·05 S.
α Lyræ	+ 0·23	— 0·27 N.
γ Aquilæ	— 0·11	— 0·16 N.
α Aquilæ	+ 0·48	— 0·54 N.
β Aquilæ	— 0·03	+ 0·35 S.
1 α Capricorni	0·00	— 0 28 N.
2 α Capricorni	+ 0·05	— 0·26 N.
α Cygni	— 0.08	— 0·03 N.
α Aquarii	— 0·08	— 0·19 N.
Fomalhaut	+ 0·35	— 0·06 N.
α Pegasi	— 0·06	— 0·18 N.
α Andromedæ	+ 0·08	+ 0·06 S.

PART II.

OF THE VARIOUS SYSTEMS OF ASTRONOMY.

SECT. I.—OF THE MOST FAMOUS SYSTEMS, BY WHICH THE CELESTIAL PHENOMENA HAVE BEEN ATTEMPTED TO BE EXPLAINED.

210. To explain the motions and appearances of the heavenly bodies, various hypotheses have been formed; and every hypothesis that ever was framed, accounted for some one or other of them; but men being, in the early ages, ignorant of the laws of motion, could not be expected to discover the true system, or explain all the various phenomena of the celestial orbs.

211. In treating of the systems which have been invented in different ages, we do not mean to give an account of all the various absurdities that have been broached by individuals on this subject; but to confine ourselves to those systems which have been of considerable note, and been generally followed for a number of years. We are as ignorant of the opinions of the first astronomers, respecting the system of the universe, as we are of the astronomers themselves. Whatever opinions are handed down to us, must be of much later date than the introduction of astronomy among mankind.

212. If we may hazard a conjecture, however, we are inclined to think, that the first opinions on this subject were much more just, than those that were held afterwards for many years. Pythagoras maintained the motion of the earth, which is now universally believed, but at that time appears to have been the opinion of only a few detached individuals in Greece. As the Greeks borrowed many things from the Egyptians, and Pythagoras had travelled into Egypt

and Phœnicia, it is probable he might receive an account of this hypothesis from thence; but whether he did or not, we have now no means of knowing, neither is it of any importance. Certain it is, however, that this opinion did not prevail in his days, nor for many ages afterwards.

213. In the second century the Pythagorean hypothesis was superseded by a system erected by the famous geographer and astronomer, Claudius Ptolemæus. This system, which commonly goes by the name of the Ptolemaic, he seems not to have originally invented, but adopted as the prevailing one of that age; and he, perhaps, made it somewhat more consistent than it was before. He supposed the earth at rest in the centre of the universe. Round the earth, and the nearest to it of all the heavenly bodies, the moon performed its monthly revolutions. Next to the moon was placed the planet Mercury; then Venus; and above that the Sun, Mars, Jupiter, and Saturn, in their proper orbits; then the sphere of the fixed stars; above these, two spheres of what he called chrystalline heavens; above these was the primum mobile, which, by turning round once in twenty-four hours, by some unaccountable means or other, carried all the rest along with it. This primum mobile was encompassed by the empyrean heaven, which was of a cubic form, and the seat of angels and blessed spirits. Besides the motions of all the heavens round the earth once in twenty-four hours, each planet was supposed to have a particular motion of its own; the moon, for instance, once in a month, performed an additional revolution, the sun in a year, &c. See Plate VII. fig. 4.

214. It is evident, that on this supposition, the complicated motions of the planets already described could never be accounted for. Had they circulated uniformly round the earth, their apparent motion ought always to have been equal and uniform, without appearing either stationary or retrograde in any part of their courses. In consequence of this objection, Ptolemy was obliged to invent a great number of circles, interfering with each other, which he called epicycles and eccentrics. These proved a ready and effectual salvo for all the defects of his system; as whenever a planet was deviating from the course it ought on his plan to have followed, it was then only moving in an epicycle or an eccentric, and would in due time fall into its proper path. As to the natural causes, by which the planets were directed to move in these epicycles and eccentrics, it is no wonder that he found himself much at a loss, and was obliged to have recourse to divine power for an explanation, or, in other words, to own that his system was unintelligible. It, however, continued to be in vogue till the beginning of the sixteenth century, when it was superseded by the Copernican, of which afterwards.

215. The only other systems worth mentioning, besides the true system, are the Tychonic, the semi-Tychonic, and the Cartesian; all of which have gained proselytes, though none of them were ever so universally received as the Ptolemaic and Copernican.

216. The Tychonic system, plate VII. fig. 7, was invented by Tycho Brahe, who supposed that the earth was at rest, and that the moon and sun revolved about it; the moon in a month, and the sun in a year; and at the same time, that the rest of the planets, Mercury, Venus, Mars, Jupiter, and Saturn, revolved round the sun; the three last also encompassing the earth. Besides these motions, he supposed them all to have a diurnal motion round the earth, as well as all the stars.

217. The semi-Tychonic system supposed the planets to revolve round the sun, while the sun and moon revolve about the earth as their centre of motion; and it supposed the earth to move about its axis from west to east in twenty-four hours. This system differs from the Tychonic only in this, that it supposes a diurnal motion in the earth, but, like the Tychonic, denies an annual one.

218. The Cartesian system, so named from its author, Des Cartes, supposes a variety of vortices or whirlpools, in which the motions of the heavenly bodies are performed, being carried round the sun in a vortex of ethereal matter, in different times, proportioned to their distances; and each planet having also a particular vortex of its own, in which the motions of its satellites are performed. From the laws of motion it will easily appear, that the irregular motions of the planets cannot be accounted for by these vortices; and besides, the supposition of an ethereal matter to perform the operations, is without any foundation, or analogy in nature.

Sect. II.—Of the Copernican, or True System of Astronomy.

219. The Ptolemaic system had gained universal credit, when Copernicus began to entertain doubts of its truth, and to try if a more satisfactory method of accounting for the apparent motion of the celestial bodies, might not be obtained. He had recourse to every author upon the subject, but obtained no satisfaction, till he found from Cicero, that Nicetas, the Syracusan, had maintained the motion of the earth; and from Plutarch, that Pythagoras and others of the ancients had been of the same opinion.

220. From these small hints, this great genius deduced a most complete system of astronomy, capable of solving every phenomenon in a satisfactory manner:—a system which has been more and more confirmed by the discoveries and improvements that have been made in astronomy and mathematics, since his time; as well as by the use of telescopes, which have discovered numerous celestial phenomena formerly quite unknown. Like all important discoveries, however, when they run counter to general prejudices, the Copernican system was at first much opposed; and by none more than the celebrated Tycho Brahe, who could never assent to the motion of the earth, and who invented the system described in the last section, with a view to supersede the necessity of it.

221. But while philosophers were divided between the Ptolemaic, the Tychonic, the Cartesian, and Copernican systems, Sir Isaac Newton laid down the laws of nature and motion, and,

comparing all the phenomena in the heavens, discovered the true system of the universe, confirmed the Copernican system of astronomy, and demonstrated its truth by unanswerable arguments, drawn from the most obvious laws of nature. This system, which is founded on a basis not to be shaken, is as follows:

222. The sun, which to us is the fountain of light and heat, is an immense spherical body, which revolves on its own axis in about twenty-five days; and is the centre round which eleven other bodies, called planets, are known to revolve at different distances and in different periods. The planes in which the planets revolve all pass through the centre of the sun, and they are in general inclined to each other in very small angles. They are called primary planets, and some of them are attended by smaller ones, called satellites, which revolve round them in the same manner as they revolve round the sun. See plate III.

223. The sun and the planets are called the solar system. The orbits of the planets are not strictly circular, but elliptical or oval, and the sun is situated in a focus of the ellipse; so that the planets, at one period of their revolution, are nearer to the sun than at another.

224. Besides the periodical revolution round the sun, each of the planets has a uniform rotatory motion round an imaginary line, called the axis, passing through the centre; and, during the whole of any planet's revolution, its axis of rotation preserves the same parallel position. In consequence of this rotation, the different parts of the surfaces of the planets are presented to the sun in succession; but it has not been observed, that the axis round which any planet rotates, is perpendicular to the plane in which it revolves round the sun; therefore, at one period of the revolution, one extremity of the axis and the adjacent parts of the surface will be inclined towards the sun, and the other at the opposite period.

225. There is a class of bodies called comets, which also revolve round the sun, and appear to be governed in their motion by the same laws that regulate the motions of the planets. Their orbits are greatly elongated, and they come towards the sun from all quarters of the heavens, differing in this respect from the planets, which revolve pretty nearly in the sun's plane. They are further distinguished from the other stars, by a luminous stream of light which they emit when they come near the sun.

226. The earth, on which we live, is one of the planets; it revolves round the sun in a year, and performs its rotation on its axis, from west to east, once in a day. The moon is a satellite attending the earth, round which it revolves from west to east in about twenty-seven days eight hours.

227. The planets, in the order of their distance from the sun, are: Mercury, Venus, the Earth, Mars, Vesta, Juno, Ceres, Pallas, Jupiter, Saturn, and Herschel, Uranus, or the Georgium Sidus. Mercury, and Venus, which are nearer the sun than the earth, are called inferior planets; and those which are more distant are called superior planets, as Jupiter, Saturn, and Herschel. These latter, indeed, are also by far the largest. Venus, Juno, Ceres, and Pallas, which are all nearly at the same distance from the sun, and all lately discovered, are so small that they are generally called asteroids. Jupiter has four satellites; Saturn seven; and Herschel six: Saturn is besides surrounded with a thin, broad, and beautiful ring, perfectly detached from his body. When an inferior planet is between the earth and the sun, its dark side being turned towards the earth, it cannot of course be seen by us, except as a spot apparently passing over the surface of the sun; but it can only be so seen when it passes the sun in one of those points in which its orbit enters into the plane of the earth's orbit. These points are called the nodes of the planet's orbit. For the characteristic marks of the sun and planets, see plate VIII. fig. 8.

228. The fixed stars are at an immense distance; for it has not yet been determined, by the nicest observations, that they have any annual sensible parallax; that is, they appear to the earth, when on different sides of its orbit, to be exactly in the same places, the earth's orbit seen from a fixed star, appearing only as a point. Consequently, the fixed stars all shine with their own native light: for it would be impossible for light, transmitted from the sun, ever to render them visible, as it would be infinitely weak at so immense a distance.

229. The distance of the sun is immensely great, in comparison with that of the moon, although it is almost nothing with respect to that of the fixed stars. For the sun's diurnal parallax, that is, the apparent semidiameter of the earth seen from the sun, is so small, that no instruments could be so exactly made as to find it. Hence, it is inferred, that the sun's magnitude is vastly greater than the earth's. For, supposing the sun's parallax to amount to as much as a minute, then, since the apparent diameter of the sun is half a degree, this would make the sun's diameter fifteen times as big as the earth's; but the sun's parallax has been found not to exceed 8·7″, which will make the sun's diameter 100 times as great as the earth's. That the sun is of a globular form, is plain from the apparent motion of the spots upon its surface; for while the sun moves uniformly about its axis, the spots in the middle of the disk move very quickly, and near the edges more slowly, agreeably to the motion of a globe about its axis. By observations on these spots, the sun is found to revolve about its axis in twenty-five or twenty-six days.

230. None of the celestial bodies in our planetary system shine with their own native light, except the sun; so that all the planets, both primary and secondary, are opaque bodies, that have no other light but what they receive from the sun, and reflect it back towards the earth and other planets. This is evident from the moon; for only that side of her is observed to shine which is directly opposed to the sun; but the other side, which is from the sun, is quite dark, except so far as it is illuminated by the reflection from the earth; for the more of the illuminated side that is turned towards the earth, the more we see her enlightened, the rest being dark; and the more of her dark side that is turned towards the earth, the more of her appears dark. Thus, at the full, she appears all enlightened, and at her change, all dark.

231. Mercury and Venus exhibit similar phenomena, and show all the phases of the moon according to their various situations. Mars likewise appears gibbous when near the quadratures with the sun. The satellites of Jupiter are eclipsed when they are behind his body, being then immersed in his shadow; they likewise cast their shadows upon the body of Jupiter. In Saturn, the shadow of the ring upon his body, proves its opacity. And the weakness of the light of those that are far distant from the sun, shows that it is not innate but borrowed.

232. The following tables contain a synopsis of the periods, distances, &c. of the sun and planets, according to the latest and best observations:

233. TABLE I.

	Periodical revolutions round the sun.	Proportional mean distances from the sun.	Mean distances from the semi-diameters of the earth.	Mean distances from the sun in English miles.	Eccentricities in parts of the mean distances.
	D. H. M.				
Mercury	87 23 15½	·3871	9,210	37,000,000	$\frac{4}{19}$
Venus	224 16 49¼	·72333	17,210	68,000,000	$\frac{1}{138}$
The Earth	365 6 9¼	1·	23,799	95,000,000	$\frac{1}{58}$
Mars	686 23 30¾	1·52369	36,262	144,000,000	$\frac{1}{11}$
Vesta	1848 — —	23·5513	56,049	222,000,000	$\frac{1}{28}$
Juno	2007½ — —	26·6400	63,400	290,000,000	$\frac{1}{4}$
Pallas	1682 — —	27·6700	65,804	265,000,000	$\frac{1}{4}$
Ceres	1681 — —	27·6500	65,851	260,000,000	$\frac{1}{12}$
Jupiter	4332 8 51½	5·20098	123,778	490,000,000	$\frac{1}{20}$
Saturn	10,761 14 36¾	9·53937	227,028	900,000,000	$\frac{1}{18}$
Herschel	30,445 18 —	19·03421	453,000	1800,000,000	$\frac{1}{21}$

234. TABLE II.

	Greatest apparent diameter as seen from the earth.	Diameter in English miles.	Diurnal rotations upon their axes.	Inclinations of their orbits to the ecliptic.	Place of the ascending node.
			D. H. M. S.		
The Sun	32′ 36″	883,217	25 15 16 0		
Mercury	11	3222	unknown.	7° 0′	1 S 15° 46¾′
Venus	58	7687	0 23 22 0	3 23½′	2 14 44
The Earth	———	7964	0 23 56 4	———	———
Mars	25	4189	0 24 39 22	1 51	1 17 59
Vesta	Very small,	Estimated	uncertain.	7 8	3 13 18
Juno	perhaps	from eighty	———	13 4	5 21 4
Pallas	about	to 4000	———	34 38	5 22 31
Ceres	1″	miles.	———	10 38	2 21 7
Jupiter	46	89,170	0 9 56 0	1 19¼	3 8 50
Saturn	20	79,042	0 10 16 0	2 30½	3 21 48½
Herschel	·4	35,109	unknown.	0 48	3 13 1

235. TABLE III.

	Greatest elongation of inferior, and parallax of superior planets.	Proportion of light and heat.	Bulk in respect to the earth.	Proportion of density.	Place of the aphelion.
The Sun			1,380,000	$\frac{1}{4}$	
Mercury	28° 20′	6·68	$\frac{1}{15}$	2	8 S 14° 13′
Venus	47 48	1·91	$\frac{9}{10}$	1¼	10 9 38
The Earth	———	1	1	1	9 9 15¼
Mars	47 24	·43	$\frac{7}{50}$	$\frac{73}{100}$	5 2 6¼
Vesta	———	·18	uncertain,	unknown.	2 9 42
Juno	———	·16	but ex-	———	7 22 49
Pallas	———	·13	ceedingly	———	10 4 36
Ceres	———	·13	small.	———	10 26 9
Jupiter	11 51	·037	1400	$\frac{28}{100}$	6 10 57½
Saturn	6 29	·011	1000	$\frac{3}{10}$	9 0 45½
Herschel	3 4¼	·00276	96	$\frac{70}{100}$	11 23 22

Sect. III. On Central Forces.

236. As the doctrine of central forces is of the greatest importance in the science of astronomy, it will be proper to explain here some of the most material propositions relative to that subject.

237. In this doctrine it is supposed, that matter is equally indifferent to motion and rest; or that a body at rest never moves itself, and that a body in motion never changes either the velocity or direction of its motion, but would move uniformly forward in a straight line for ever, unless some external force or resistance should stop or change it.

238. Hence when a body at rest has a tendency to move, or when a body moving in a straight line, has its velocity continually increased or diminished, or when the direction of a motion is continually changed, and thereby a curve line described; it is supposed that these circumstances proceed from the influence of some power that acts incessantly, which power may be measured in the first case by the pressure of the quiescent body against the obstacle that hinders it from moving; or by the change made on the velocity in the second case; or by the flexure of the curve described in the third case; due regard being had to the time in which these effects are produced, and other circumstances, according to the principles of mechanics. Now the power or force of gravity produces effects of each of these kinds, which fall under our observation at the surface of the earth; for the same power that renders bodies heavy while at rest, accelerates their motion when they descend perpendicularly, and bends the path of their motion into a curve line when they are projected in a direction oblique to that of their gravity. But we can judge of the forces or powers that act on the celestial bodies by effects of the last kind only, and hence it is that the doctrine of central force is of so much use in the theory of the planetary motions.

239. The following proposition is the foundation of this doctrine, and is given by Sir I. Newton in his Principia. The areas which revolving bodies describe by radii drawn to an immovable centre of force, lie in the same planes and are proportional to the times in which they are described. Let the time supposed be divided into equal parts, and in the first part let a body be supposed, by its own inert force, to describe a right line, AD, Plate VIII. fig. 5. From what we have premised it will appear, that in the second part of time the body would describe the line D B equal to A D, if nothing acted upon it. But when the body is come to D, suppose a centripetal force tending to the point C acts upon it by a single impulse, such, that it would have carried the body from D to *a* in the same time. The body being now acted upon by two powers, one in the direction D B, and another in the direction D *a* passing through the centre of force, if the parallelogram *a*D B E be completed, the body will move in the diagonal D E, and at the end of the time will be found at E, by the principles of mechanics. Join A C, C E; the triangle A D E, D C B, having equal bases, will therefore be equal, and the triangles C D B, C D E, are equal, for they stand on the same base C D, and lie between the parallels D C, B E: therefore the triangles A C D, D C E are equal. By the same method of reasoning, if in the third particle of time the body describes any other right line E G, it may be proved that the triangle C D E is equal to C E G; and in a fourth particle there will be described a triangle C G I equal to C E G, and so on: it is also obvious that the lines A D, D E, E G, G I, &c. lie in the same plane.

240. Thus it appears that in equal times the areas described by radii drawn to the centre of force will be equally increased, and therefore by composition, any sums of the areas are to one another, as the times in which they are described. Let the number of triangles be supposed to be now augmented, and their breadth diminished *ad infinitum*, the lines A D, D E, E G, G I, &c. will now become a curve line lying in the same plane, and the centripetal force which was supposed to act by starts, will now act continually, deflecting the body from the tangent, and thus causing it to move in a curve.

241. We may hence infer, that the velocity of a body attracted towards an immovable centre, in spaces void of resistance, is reciprocally as a perpendicular let fall from that centre on the right line that touches the orbit. For draw C Y perpendicular to D E, and suppose the body to describe D E in a given time, hence the velocity of the body will be proportional to D E, and from what has been said, the area of the triangle C E D will be given, for it is proportional to the time: but when the area of a triangle remains the same, the base varies inversely as the perpendicular, therefore D E, or the velocity of the body, is inversely as C Y the perpendicular; and the same will hold true, whether the body, by successive impulses, moves by a polygon in the way here described; or, by the continual action of the central force, moves in a curve line.

242. The central force of a body moving in the circumference of a circle, is as the versed sine, A M (plate X. fig. 7), of the indefinitely small arc A E; or it is as the square of that arc divided by the diameter A B. For A M is the space through which the body is drawn from the tangent in the given time, whence 2 A M is the measure of the intensity of the force. But A E being very small, and therefore nearly equal to its chord, we have $AM = \frac{AE^2}{AB.}$ If therefore two bodies revolve uniformly in different circles, their central forces are directly as the squares of their velocities, and inversely as the diameters, or as the radii of the circles. For the velocities are as the space uniformly described in the same time. Hence, $F : f :: \frac{V^2}{D} : \frac{v^2}{d.}$ Hence, if the diameters are inversely as the squares of the velocities, the forces will be as the fourth power of the velocities.

244. The central forces are to each other as the diameters divided by the squares of the periodic times. For if C be the circumference described in the time t, with the velocity v, then $C = t\,v$, or $v = \frac{C}{2.}$ Hence, $F : f :: \frac{V^2}{D} \cdot \frac{v^2}{d}$ $:: \frac{C^2}{DT^2} : \frac{c^2}{d\,t^2} :: \frac{D}{T^2} : \frac{d}{t^2}$; for the diameter varies as the circumference.

245. If two bodies, revolving in different circles, be acted upon by the same central force, their periodic times are as the square roots of the diameters, or of the radii of those circles. For when $F = f$, the expression $F : f :: \frac{D}{T^2} : \frac{d}{t^2}$, gives $\frac{D}{T^2} = \frac{d}{t^2}$, whence $T : t :: \sqrt{D} : \sqrt{d}$.

246. If the velocities be inversely as the distances from the centre, the forces will be inversely as the cubes of the same distances, or directly as the cubes of the velocities. For $F : f :: \frac{V^2}{D} : \frac{v^2}{d}$; whence, if D vary as V, inversely, $F : f :: V^3 : v^3$; or $F : f :: d^3 : D^3$.

247. If the velocities be inversely as the square roots of the radii, the squares of the times will be as the cubes of the radii. For, as has been shewn above, $F : f :: \frac{V^2}{R} : \frac{v^2}{r}$; and $F : f :: \frac{R}{T^2} : \frac{r}{t^2}$; whence $\frac{V^2}{R} : \frac{v^2}{r} : \frac{R}{T^2} : \frac{r}{t^2}$. And if $V^2 : v^2 :: r : R$, this proportion becomes $\frac{r}{R} : \frac{R}{r} :: \frac{R}{T^2} : \frac{r}{t^2}$. When $\frac{r^2}{Rt^2} = \frac{R^2}{rT^2}$, or, $\frac{r^3}{t^2} = \frac{R^3}{T^2}$, or $T^2 : t^2 :: R^3 : r^3$. Hence, also, if the forces be inversely as the squares of the radii, the squares of the periodic times will be as the cubes of the distances. For $F : f :: \frac{R}{T^2} : \frac{r}{t^2}$, hence, $r^2 : R^2 :: \frac{R}{T^2} : \frac{r}{t^2}$, or $T^2 : t^2 :: R^3 : r^3$

248. We shall now apply the doctrine of central forces, to the circumstances of a planet revolving in an ellipsis, by a force directed towards the focus.

249. Let A B H L (plate VI. fig. 2) represent the ellipses, S and A the foci, and let P be the place of the planet, and PT a tangent at P, and let P p be an indefinitely small arc described by the planet. Join PS, p s, and draw p F parallel to SP, meeting PT in F. Then p F is the central force in the arc p P. Let $a =$ the parameter of the transverse AH; or let a AC $= 2$ BC^2. From p draw p I parallel to PT, meeting PK in I, and SP in i. Then the triangles PI i, PCE being similar, and P i equal and parallel to p F. P i or p F : PI :: PE, or (by conics) AC : PC. When $a \cdot p$ P : $a \cdot$ PI :: AC : PC. And similarly $a \cdot$ PI :: PI $\cdot$ IK :: a : KI; and by the property of the ellipse IP $\cdot$ IK : Ip^2 :: PC^2 : CN^2. From p draw p M perpendicular to SP, then in the similar right angled triangles p i M PED, we have ip, or Ip (for they differ by quantities indefinitely small) p M :: PE : PD. But by conics PE : PD :: CN : CB, whence Ip : pM :: CN : CB, and consequently Ip^2 : pM^2 :: CN^2 : CB^2. Hence, by comparing these proportions, we have p F $\cdot a$ IP $\cdot$ IP $\cdot$ KI $\cdot$ Ip^2 : IP $\cdot a \cdot$ IP $\cdot$ KI $\cdot$ I$p^2 \cdot p$ M^2 :: CA $\cdot a \cdot$ PC$^2 \cdot$ CN^2 : PC $\cdot$ KI $\cdot$ CN$^2 \cdot$ CB^2; or by reduction $a \cdot$ PF : pM^2 : $a \cdot$ AC $\cdot$ PC : KI $\cdot$ CB^2; or, $a \cdot$ PF : p M^2 : 2 CB$^2 \cdot$ PC : CB$^2 \cdot$ KI :: PC : KI. But P and I being indefinitely near, KI $=$ KP $=$ 2 PC; therefore $a \cdot p$ F $= p$ M^2. Now the time in P p is represented by the area of the triangle SP p or by $\frac{SP \cdot pM}{2}$, whence $T^2 = \frac{SP^2 \cdot pM^2}{4}$, and consequently p M$^2 = \frac{4 T^2}{SP^2}$ whence p F (the force) $= \frac{4 T^2}{a \cdot SP^2}$, or (as the increments of time are uniform), the force is inversely as the square of the distance from the focus.

250. We may hence infer, that if several planets revolve in different ellipses about a common focus, that the areas of the sectors described in the same time are as the square roots of the parameter of the transverse axes. For by conics $a \cdot p$ F $= p$ M^2; but p F varies as $\frac{1}{SP^2}$; hence $a = \overline{pM \cdot SP^2}$, or $\sqrt{a} =$ PM. SP. But PM. SP is proportionate to the area of elementary sector S P p, which therefore varies as $t\sqrt{a}$.

251. We may farther infer, that the velocities in the different ellipses, are as the square root of the parameter of the transverse, divided by the perpendicular from the focus on the tangents, passing through the places of the planets. For the velocity, in an indefinitely small space of time, is as the arc pP; and from the similar triangles S PT, p MP, an hour S T : S P :: P M : p P. Whence p P $= \frac{SP \cdot pM}{ST} = \frac{\sqrt{a}}{ST}$

252. It is farther apparent from what has been done, that the areas of the different ellipses are to each other as the product of the times by the square roots of the parameters of the transverse axes. For the area, Q, is as the product of the sector S P p by the time, t, and the sector varies as $\sqrt{a}$; therefore Q varies as $t\sqrt{a}$.

253. Again, the squares of the periodic times are proportional to the cubes of the transverse axes. For let b be the less, d the greater axis, and a the parameter; then by conics $a\,d = b^2$, or $a\,d^3 = b^2\,d^2$. But the whole areas are as the product of the axes; and also, as has been just shown, as $t\sqrt{a}$. Hence $b^2\,d^2$, or $d^3\,a = t^2\,a$, or d^3 varies as t^2.

Sect. IV. Of the Orbits and Motions of the Primary Planets.

254. For the theorems in the preceding section on the subject of central forces we are indebted to the sagacity of Newton. They had before his time, however, been found by Kepler to be true in the case of the known planets of the solar system. Kepler showed that these laws *did* obtain in the system; Newton shewed that they *must* obtain.—The three fundamental laws of planetary motion which Kepler discovered, and of which the demonstrations given above, are these.

255. 1. The primary planets and comets describe round the sun, and the secondary planets describe round their respective primary planets, areas proportioned to the times.

256. 2. The orbits described round the sun, and round the primary planets, are ellipses, having the sun of the primary planet in the focus.

257. 3. The squares of the periodic times of planets revolving round common centres, are proportional to the cubes of their mean distances.

258. These laws are universal; they are obeyed by all the planets of our system, which revolve nearly in the same plane, and they are found to obtain also in the comets which move round the sun in all directions.

259. In addition to what has been said, the following popular illustration may be given of the peculiarities of the motion of a planet in the different planets of its orbit. Let A B and E F be the axis of an ellipse, of which D is the centre, and C the focus. See plate VIII.fig. 4. Suppose that P is the place of a planet moving in the curve A F B E, (supply P in the fig.) and that P G is drawn touching the curve at P. Join C P, C E, and draw C G perpendicular to P G. The place of the sun will be at C the focus, and the planet will move in the curve; so that the line C P shall pass over equal areas in equal times. Since the velocity of the planet is inversely as the perpendicular upon the tangent, and the lines C B, C A, are perpendicular to tangents at the points B and A, the velocity at A, as C A to C B, and the velocity at B is to the velocity at P as C G to C B. Thus at B, which is called the perihelion, the velocity will be the greatest, and at A, the aphelion, it will be the least; and at any other point, P, it will be between these two extremes. The line C E is equal to B D, which is a mean between B C and C A; and when the planet is at E, it is said to be at its mean distance. The force, that, acting upon the planet at P, bends it from the tangent, is to the force that acts upon it at E, any other point, as the square of C E to the square of C P.

260. We have hitherto supposed the sun to remain absolutely at rest, and that the planet was urged towards it, as to an immovable point; but the tendency of the planets towards the sun, arises from a law, that not only connects the planets with the sun, but with each individual particle of matter in the solar system; a particular cause of this law or fact, is the gravity of bodies at the surface of our earth, and the general law that includes all particular cases, has been termed gravitation. Hence it follows, that not only the planets gravitate towards the sun, but the sun gravitates towards the planets; so that, in strict truth, both the sun and each planet revolve round a point, which is their common centre of gravity, and which is as much nearer to the sun than to the planet, as the sun contains more matter than the planet.

261. The truth of this general law is only to be proved by a careful examination of particular cases; and, supposing it to be true, the effects it ought to produce in the planetary motions round the sun, are in perfect coincidence with the best observations.

262. If all matter gravitates to, or is attracted by, all other matter, it is evident that the planets must also gravitate towards each other; and thus in some measure the uniformity of their motions round the sun will be affected. Now, by the most accurate observations, this is really found to be the case; and the effects produced are precisely what they ought to be, supposing that the same law, which regulates the tendency of the planets towards the sun, also regulates their tendency to one another.

263. If the planets were acted on by a power directed to the centre of the sun only, varying according to the general law of gravity, and that centre were quiescent, their motions about it would be perfectly regular; but since they are acted on by a power directed to every body in the system, in order to judge of the effects of these actions, Newton first supposes two bodies revolving about their common centre of gravity, and gravitating towards each other, and since the direction of this mutual gravitation passes always through that centre, and their distances from it vary always in the same proportion as their distances from each other, they must describe similar figures about that point and about each other, and describe equal areas in equal times, about that centre, and about each other; so that there will be no irregularities in the motion of two bodies about each other, because of their mutual attractions, whatever the law of their gravity is supposed to be; only they will revolve in less time about their centre of gravity, than the one would have done about the other quiescent, because the orbit described about the other centre of gravity is less than that which is described by any one of them about the other quiescent; their distance in both cases being the same, and the orbits similar.

264. If three or more bodies mutually attract each other, the gravitation of any one of them arising from the attractions of the rest, may be determined by the rule for composition of motion and if the law of gravity be such as obtains in the solar system, its gravitations will not be always directed to the centre of gravity of the other bodies, or indeed to any fixed point, but sometimes to one side of that centre and sometimes to the other, and therefore equal areas will not be described in equal times about any point in the system; and some irregularities will therefore arise in the motions of the bodies.

265. But if one of these bodies should be vastly greater than the others, so that the action of the other bodies may be neglected, when compared with its action; and the centre of gravity of the system be always found near it, the irregularities of such a system will be very small, the areas described in equal times about the centre of the great body will be nearly equal, and the orbits described will be nearly elliptic, having that centre in their focus.

266. We have seen that the determination of the circumstances relative to two bodies in motion, is a matter of great simplicity; but when the number of bodies is increased even by one, the general estimation of their effects on each other's motions is a problem that has hitherto baffled the skill of the most eminent philosophers. It happens very fortunately that, in the only case in which it is of much importance to us, it admits of an approximate solution, from the sun being so much greater than all the other planets; for in the case of the

moon, the sun, and the earth, which we may take for the sake of illustration, the sun disturbs the motions of the moon as seen from the earth, only by the difference of its attractions on the moon and the earth, which difference, when compared with the former by which the moon is attracted towards the earth, is always very small.

267. The action of Jupiter on Saturn, when greatest (that is, when their distance is least), is found by calculation to be $\frac{1}{2674}$ of the action of the sun upon Saturn. This produces an effect which is decidedly perceptible.

268. The whole action of Jupiter disturbs the motion of Saturn in their conjunction, because Jupiter then acts upon Saturn and upon the sun in opposite directions. But because Saturn then acts upon Jupiter and upon the sun in the same direction, if it acted also with the same force on both, it would have no effect on the motion of Jupiter about the sun; and it is by the excess of its action on Jupiter, above its action on the sun, that it disturbs the motion of Jupiter. This excess is found to be one 1913th part of the action of the sun on Jupiter; and therefore is much less than the force with which Jupiter disturbs the motion of Saturn.

269. The actions of the other planets on each other are incomparably less than these, and the irregularities proceeding from those actions are always less in any planet, as it is nearer the sun; but the orbit of the earth is a little more irregular than that of its neighbouring planets, from the great comparative size of its moon, round the common centre of gravity of which, and the earth, both the earth and the moon make a monthly revolution.

Sect. V.—Of the Orbits and Motions of the Secondary Planets.

270. The same general principle of gravitation which contains the primary planets in their orbits, extends also to the motions of the secondary planets, both in regard to their motion round the sun along with their primaries, and to their motions round their primaries as a centre; which furnishes us with an additional proof of this general law, that all matter gravitates to all other matter with a force reciprocally proportional to the square of the distance.

271. That each secondary planet is kept in its orbit by a power directed towards its primary, &c. is proved from the phenomena of the satellites of Jupiter and Saturn; because they move in circles, as far as we can observe, about their respective primaries with an equal course, the primary being the centre of each orbit: and by comparing the times in which the different satellites of the same primary perform their periods, they are found to observe the same relation to the distances from their primary, as the primary planets observe in respect of their mean distances from the sun. The same thing holds good also with respect to the earth and moon; for she is found to move round the earth in an ellipsis after the same manner as the primary planets do about the sun, excepting only some small irregularities in her motions, the cause of which will be particularly explained in what follows; and it will appear that they are no objections against the earth's acting on the moon in the same manner as the sun acts on the primary planets; that is, as Jupiter and Saturn act upon their satellites.

272. The power of Jupiter and Saturn may be measured to a very considerable distance, by the number of satellites which move round them; for the distance of the outermost satellite of each of them exceeds several times that of the innermost. That the force which retains the moon in her orbit, bears precisely that relation which accords with its distance to the known force of gravity on the surface of the earth, may be shown by the following very simple process.

273. Let A in plate VII. fig. 5, represent the earth, B the moon, B C D the moon's orbit; which differs little from a circle of which A is the centre. If the moon in B were left to itself to move with the velocity it has in the point B, it would leave the orbit and proceed straight forward in the line B E which touches the orbit in B. Suppose the moon would upon this condition move from B to E in the space of one minute of time: by the action of the earth upon the moon, whereby it is retained in its orbit, the moon will really be found at the end of this minute in the point F, from whence a straight line drawn to A will make the space B F A in the circle equal to the triangular space B E A; so that the moon, in the time wherein it would have moved from B to E, if left to itself, has been impelled towards the earth from E to F. And when the time of the moon's passing from B to F is small, as here it is only one minute, the distance between E and F scarcely differs from the space through which the moon would descend in the same time, if it were to fall directly down from B towards A, without any other motion. A B, the distance of the moon from the earth, is about sixty of the semidiameters of the latter; and the moon completes her revolution round the earth in about twenty-seven days, seven hours and forty-three minutes: therefore the space E F will here be found by computation to be about $16\frac{1}{12}$ feet. Consequently, if the power by which the moon is retained in its orbit, be greater, near the surface of the earth, than at the distance of the moon, in the duplicate proportion of that distance, the number of feet a body would descend near the surface of the earth, by the action of this power upon it, in one minute, would be equal to the number $16\frac{1}{12}$ multiplied twice into the number sixty, that is, to 58,050.

274. Now bodies falling near the surface of the earth have been found, by exact experiments, to descend $16\frac{1}{12}$ feet in one second; and the spaces described by falling bodies being as the squares of the times of their fall, the number of feet a body would describe in its fall near the surface of the earth in one minute of time, would be equal to $16\frac{1}{12}$ multiplied by 60^2; the same as the power which acts upon the moon would cause.

275. We may hence conclude, that the power which retains the moon in her orbit is the same as that which causes bodies near the surface of the earth to gravitate; for, since the power by which the earth acts on the moon will cause

bodies near the surface of it to descend with precisely the velocity they are found to do, it is certain that no other power can act upon them besides; because, if it did, they must of necessity descend more swiftly. It is therefore evident, that the power in the earth which we call gravity, extends up to the moon, and decreases as the square in the same proportion as the square of the distance from the centre of the earth increases. If to the motion of the satellite whereby it would be carried round its primary at rest, we superadd the same motion, both in regard to velocity and direction, as the primary itself has, it will describe about the primary the same orbit with as great regularity as if the primary had been indeed at rest. This proceeds from the law of motion, which makes a body near the surface of the earth descend perpendicularly, though the earth be in a swift motion, of which if the falling body did not partake, its descent would be oblique.

276. From this we learn, that, if the satellite moved about its primary with perfect regularity, besides its motion about the primary, it would have the same progressive velocity with which the primary is carried about the sun, in a direction parallel to that impulse of its primary; and, on the contrary, the want of either of these, in particular of the impulse towards the sun, will occasion great inequalities in the motion of the secondary planet. The inequalities which would arise from the absence of this impulse towards the sun are so great, that by the regularity which appears in the motion of the secondary planets, it is proved, that the sun communicates to them the same velocity by its action as it gives to their primary at the same distance.

277. The sun therefore acts upon the secondary planets with the same force as upon the primaries at the same distance: but the action of the sun upon bodies is reciprocally in the duplicate proportion of the distance; therefore the secondary planets being sometimes nearer to the sun than to the primary, and sometimes more remote, they are not always acted upon in the same degree with their primary, but when nearer to the sun are attracted more, and when farther off are attracted less. Hence arise various inequalities in the motions of the secondary planets. Some of these inequalities, however, would take place, though the moon, if undisturbed by the sun, had moved in a circle concentrical to the earth, and in the plane of the earth's motion; others depend on the elliptical figure and oblique situation of the moon's orbit. One of the former is, that the moon does not describe equal spaces in equal times, but is continually accelerated as she passes from the quarter to the new or full, and is retarded again by the like degrees in returning from the new and full to the next quarter; but here we consider not so much the absolute as the apparent motions of the moon with respect to us.

278. These two may be distinguished in the following manner:—Let S, in plate X. fig. 6. represent the sun, A the earth moving in its orbit, B C, D E F G the moon's orbit, and H the place of the moon in her orbit. Suppose the earth to have moved from A to I. Because it has been shown that the moon partakes of all the progressive motions of the earth, and likewise that the sun attracts both the earth and moon equally when they are at the same distance from it, or that the mean action of the sun upon the moon is equal to its action upon the earth; we must therefore consider the earth as carrying about with it the moon's orbit; so that, when the earth is removed from A to I, the moon's orbit shall likewise be removed from its former situation into that denoted by K L M N. But now the earth being in I, if the moon were found in O, so that O I should be parallel to H A, though the moon would really have moved from H to O, yet it would not have appeared to a spectator upon the earth to have moved at all, because the earth has moved as much; so that the moon would still appear in the same place with respect to the fixed stars. But if the moon be observed in P, it will then appear to have moved, its apparent motion being measured by the angle O I P. And if the angle P I S be less than the angle H A S, the moon will have approached nearer its conjunction with the sun. Now, to explain particularly the inequality of the moon's motion already mentioned, let S, plate VIII. fig. 9, represent the sun, A the earth, B C D E the moon's orbit, C the place of the moon when in the latter quarter. Here it will be nearly at the same distance from the sun as the earth is. In this case, therefore, they will be both equally attracted, the earth in the direction A S, and the moon in that of C S. Whence, as the earth, in moving round the sun, is continually descending towards it, so the moon in this situation must in any equal portion of time descend as much; and, therefore, the position of the line A C in respect of A S, and the change which the moon's motion produces in the angle C A S, will not be altered by the sun: but as soon as the moon is advanced from the quarter toward the new or conjunction, suppose to G, the action of the sun upon it will have a different effect. Were the sun's action upon the moon here to be applied in the direction G H parallel to A S, if its action on the moon were equal to its action on the earth, no change would be wrought by the sun on the apparent motion of the moon round the earth. But the moon receiving a greater impulse in G than the earth receives in A, were the sun to act in the direction G H, yet it would accelerate the description of the space D A G, and cause the angle G A D to decrease faster than it otherwise would. The sun's action will have this effect, upon account of the obliquity of its direction to that in which the earth attracts the moon. For the moon by this means is drawn by two forces oblique to one another: one drawing from G towards A, the other from G towards H; therefore the moon must necessarily be impelled towards D.

279. Again, because the sun does not act in the direction G H parallel to S A, but in the direction G S oblique to it, the sun's action on the moon will, by reason of this obliquity, farther contribute to the moon's acceleration. Suppose the earth, in any short space of time, would have moved from A to I, if not attracted by the sun, the point I being in the straight line C E, which touches the earth's orbit in A. Suppose the moon

in the same time would have moved in her orbit from G to K, and besides have partaken of the progressive motion of the earth. Then, if K L be drawn parallel to A I, (the line K L must be supplied in the figure) and taken equal to it, the moon, if not attracted to the sun, would be found in L. But the earth, by the sun's action, is removed from I. Suppose it were moved down to M in the line I M N parallel to S A, and if the moon were attracted but as much, and in the same direction as the earth is here supposed to be attracted, so as to have descended during the same time in the line L O parallel also to A S, down as far as P, till L P were equal to I M, let P M be joined, the angle P M N will be equal to L I N; that is, the moon will appear advanced as much farther forward as if neither it nor the earth had been subject to the sun's action. But this is on the supposition that the actions of the sun upon the earth and moon are equal; whereas the moon being acted upon more than the earth, did the sun's action draw the moon in the line L O parallel to A S, it would draw it down so far as to make L P greater than I M, whereby the angle P M N will be rendered less than L I N. But, as the sun draws the earth in a direction oblique to I N, the earth will be found in its orbit, somewhat short of the point M. However, the moon is attracted by the sun, still more out of the line L O, than the earth is out of the line I N; therefore, this obliquity of the sun's action will yet farther diminish the angle under P M N. Thus the moon, at the point G, receives an impulse from the sun, whereby her motion is accelerated; and the sun producing this effect in every place, between the quarter and the conjunction, the moon will move from the quarter, with a motion continually more and more accelerated; and therefore, by acquiring, from time to time, an additional degree of velocity in its orbit, the spaces which are described in equal times by the line drawn from the earth to the moon, will not be everywhere equal, but those towards the conjunction will be greater than those towards the quarter. But, in the moon's passage, from the conjunction D to the next quarter, the sun's action will again retard the moon, till, at the next quarter at E, it be restored to the first velocity which it had in C.

280. When the moon moves from E to the full, or opposition to the sun in B, it is again accelerated; the deficiency of the sun's action on the moon from what it has upon the earth, producing here the same effect as before the excess of its action. Let us now consider the moon in Q, as moving from E towards B. Here, if she were attracted by the sun in a direction parallel to A S, yet being acted on less than the earth, as the latter descends towards the sun, the moon will, in some measure, be left behind. Therefore, R F being drawn parallel to S B, a spectator would see the moon move as if attracted from the point Q, in the direction R F, with a degree of force equal to that whereby the sun's action on the moon falls short of its action on the earth. But the obliquity of the sun's action has here also an effect. In the time the earth would have moved from A to I, without the influence of the sun, let the moon have moved in its orbit from Q to R. Drawing, therefore, R T parallel to A I, the moon, by the motion of its orbit, if not attracted by the sun, must be found in T; and therefore, if attracted in a direction parallel to S A, would be in the line T V parallel to A S; suppose in W. But the moon in Q being farther off the sun than the earth, it will be less attracted; that is, T W will be less than I M; and if the line N M be prolonged towards X, the angle X M W will be less than X I T.

281. Thus, by the sun's action, the moon's passage from the quarter to the full would be accelerated, if the sun were to act on the earth and moon in a direction parallel to A S; and the obliquity of the sun's action will still increase this acceleration: for the action of the sun on the moon is oblique to the line S A, the whole time of the moon's passage from Q to T, and will carry her out of the line T V towards the earth. Here we suppose the time of the moon's passage from Q to T so short, that it shall not pass beyond the line S A. The earth will also come a little short of the line I N, as was already mentioned; and from these causes the angle X M W will be still farther lessened. The moon, in passing from the opposition B to the next quarter, will be retarded again in the same manner as it was accelerated before its appulse to the opposition; and thus the moon, by the sun's action upon it, is twice accelerated, and twice restored to its first velocity every circuit it makes round the earth; and this inequality of the moon's motion about the earth is called by astronomers its variation.

283. The orbit of the moon is dilated when nearer the sun, and contracted when she is more remote: for it has been proved by Newton, that the action of the sun, by which it diminishes the earth's power over the moon in the conjunction or opposition, is about twice as great as the addition to the earth's action by the sun in the quarters; so that, upon the whole, the power of the earth on the moon is diminished by the sun; and therefore is most diminished when that action is strongest. But as the earth, by its approach to the sun, has its influence lessened, the moon, being less attracted, will gradually recede from the earth; and as the earth, in its recess from the sun, recovers by degrees its former power, the orbit of the moon must again contract.

284. Two consequences follow from hence, viz. that the moon will be more remote from the earth, when the latter is nearest the sun, and will take up a longer time in performing its revolution through the dilated orbit, than through the more contracted. These irregularities would be produced, if the moon, without being acted upon unequally by the sun, should describe a perfect circle about the earth, and in the plane of its motion: but, though neither of these circumstances take place, yet the above-mentioned inequalities occur only with some little variation with regard to the degree of them; but some others are observed to take place from the moon's motion being performed in the manner already described. For, as the moon describes an ellipsis, having the earth in one of its foci, this curve will be subjected to various changes, neither preserving constantly the same figure nor position; and,

because the plane of this ellipsis is not the same with that of the earth's orbit, it follows, that the former will continually change; so that neither the inclination of the two planes towards each other, nor the line in which they intersect, will remain for any length of time unaltered.

285. The various forces by which the motion of the moon is disturbed, and the changes which take place in its orbit, may be investigated in the following manner. See plate IX. fig. 13. Let C A B D be the moon's orbit, T the earth, S the sun, P the moon; make SK = ST; and let SK : SL : : SP^2 : SK^2. Then if SK or ST represent the sun's force at T, SL will represent his force at P. Draw L M parallel to PT; divide the force LS into the two forces LM acting parallel to PT, and MS acting parallel to TS. But the force LM, and the part TM disturb the moon's motion.— The force L M in its mean quantity is equal to PT, and by so much the force of the earth is increased. Also TM in its mean quantity is equal to 3PK, acting in a direction PN parallel and equal to T S; and the force M T draws the moon out of her orbit. Let P p be the periodical times of the earth and moon; then the sun's centripetal force at T (ST): the earth's centripetal force at P : : $\frac{ST}{PP}$: $\frac{PT}{pp}$; therefore the earth's centripetal force at P = $\frac{PT \times PP}{pp}$ And this is to the additional force PT : : $\frac{PT \times PP}{pp}$: P T : : P P : pp. That is, the force by which the moon is retained in her orbit : is to the increase of centripetal force by the sun's action : : PP : pp : : 178·725 : 1.— Therefore the increase of the moon's centripetal force is $\frac{1}{178 \cdot 725}$ of that force.

286. Also force PT : force 3PK or PL : : PT : 3 P K. Therefore, ex æquo, the force by which the moon is retained in her orbit: disturbing force PL or TM : : PT × 178·725 : 3 PK. Therefore the disturbing force TM = $\frac{3PK}{PT \times 178 \cdot 725}$ × earth's centripetal force on the moon = $3a$ the sine of the moon's distance from the quadratures × earth's centripetal force, divided by 178·725 × radius.

Let C, c, be the centripetal forces of the sun and earth, s = sine of the moon's distance from the quadrature, radius = r. Then the additional force (PT) = $\frac{c}{178'725}$. And the disturbing force (TM) = $\frac{3sc}{178 \cdot 725r}$

Produce TP, and make PR = PL, or TM, and draw RQ perpendicular to TQ. Then QR is the force that accelerates the moon, and PQ is the diminution of its centripetal force.

For the force PR is divided into two forces, P Q, and Q R, of which P Q, acting towards Q, diminishes the moon's centripetal force; and QR being parallel to the tangent at P, accelerates the moon at P.

287. There are therefore four points in the moon's orbit, each 35° 16′ from the quadratures, where the moon's disturbing force makes no alteration in the earth's central force.

For the triangles P K T and P Q R are similar. whence PK : PT : : PQ (PT) : PR (3PK); therefore 3 PK^2 = PT^2, or $3ss = rr$, whence $s = \sqrt{\frac{rr}{3}}$ = S. 35° 16′. And when PQ = PT, the diminution of the force is equal to the addition, which makes no alteration.

The mean force PT is = $\frac{1}{643410}$ of the force of gravity of the earth.

For the force of gravity is 3600 times greater than the force at P.

The whole increase of the centripetal force at P is $\frac{c}{171 \cdot 725} \times \left(1 - \frac{3ss}{rr}\right)$

For rad (r) : s : : PT $\left(\frac{c}{178 \cdot 725}\right)$: PK = $\frac{cs}{178 \cdot 725r}$. And PR = 3PK = $\frac{3cs}{178 \cdot 725r}$ And rad (r) : PR $\left(\frac{3cs}{178 \cdot 725r}\right)$: : S.R (r) : PQ = $\frac{3css}{178 \cdot 725rr}$. And PT — PQ = whole additional force = $\frac{1 - \frac{3ss}{rr}}{178 \cdot 725} c$.

If A = sine of twice the moon's distance from the quadratures; then the force QR, accelerating or retarding the moon's motion in its orbit, is $\frac{3c}{178 \cdot 725} \times \frac{A}{2r}$.

Let z = S.QPR or KPT = cos. PTK; then rad (r) : RP $\left(\frac{3cs}{178 \cdot 725r}\right)$: : S.QPR (z) : QR = $\frac{3c}{178 \cdot 725rr} \times sz$ = (by trigonometry) $\frac{3c}{178.725} \times \frac{A}{2r}$.

288. Hence the moon is accelerated in the quadrants C A, D B; and retarded in the quadrants AD, BC; and the force which accelerates or retards the moon's motion, is greatest in the octants.

For it is greatest when A is greatest, that is, when 2 C P is ninety degrees, or C P = 45°.

The disturbing force TM, in the syziges A and B, is 2 P T. And therefore the earth's force upon the moon in the syziges, is twice as much diminished, as it is increased in the quadratures.

The moon's orbit is more flat in the syziges, and more curve in the quadratures; and therefore she goes farther from the earth in the quadratures.

For the orbit will be more curve where the central force is greater, that is in the quadratures.

289. The motion of the moon's nodes, supposing her orbit to be nearly circular, may be thus found:

In fig. 7, plate XIII, let A q B Q be the moon's orbit, T the earth, P the moon, S A B the line of the apsides, Q, q the quadratures, m N n the line of the nodes. P K, P H, A Z perpendiculars upon T Q and Nn. The force by which the moon is drawn out of her orbit has been found to be

$\frac{3s}{178{\cdot}725r}\,c = \frac{s}{59{\cdot}575r}\,c$. Let P M be the arch which the moon describes in any small time; and M L a small line, which the moon describes in the same time by the force $\frac{s}{59{\cdot}575r}\,c$, as this force is directed to the sun, the line M L will be parallel to T A. As M L is the distance that the moon is drawn from the arch P M, by the said accelerative force; 2 M L will be the uniform motion it has acquired in that time, by the said force. Let M P be continued back to m, in the moon's orbit, to cut the line of the nodes T N in m. Now since M L is parallel to the ecliptic; a plane drawn through M L and M P m, will cut the ecliptic in a line $m\,l$, which will be parallel to M L; therefore draw L P l to cut $m\,l$ in l, and the triangles P M L and P $m\,l$ are similar, and therefore $m\,l = \frac{m\mathrm{P} \times \mathrm{ML}}{\mathrm{MP}}$; but since M P is given, and M L is as the force 3 P K, therefore $m\,l$ is as $m\mathrm{P} \times \mathrm{PK}$. Now when the moon was at P, the line of the nodes was at T m, where the plane of the moon's orbit T M P cuts the ecliptic. But, when the moon comes to L (instead of M), the plane of her orbit will then be in the plane T L P; and the line of the nodes at T l, where the plane T L P l cuts the ecliptic. Therefore the angular motion of the nodes generated in that time will be = angle mT l. But the angle mT l is as $\frac{m\,l}{\mathrm{T}m} \times$ sine of Tml or A T N; that is, as $\frac{m\mathrm{P} \times \mathrm{PK}}{m\mathrm{T}} \times \mathrm{AZ}$; that is, because by similar triangles $\left(\frac{m\mathrm{P}}{m\mathrm{P}} = \frac{\mathrm{PH}}{\mathrm{PT}}\right)$ as $\frac{\mathrm{PH} \times \mathrm{PK}}{\mathrm{PT}} \times \mathrm{AZ}$, that is, (because P T is given) as P H × P K × A Z.

The line M L is to the versed sine of the arch P M, as the forces that produce them; that is, as $\frac{s}{59{\cdot}575r}\,c$ to c, or as s to $59{\cdot}575r$. That is M L: $\frac{\mathrm{PM}^2}{2\mathrm{MT}}$: : s : $59{\cdot}575r$; therefore M L = $\frac{\mathrm{PM}^2}{2\mathrm{MT}} \cdot \frac{s}{59{\cdot}575r}$. When P falls upon A, or the moon is in the syzigy; then $s = r$, and the angle P M L is a right angle: therefore in the triangle P M L, P M : M L $\left(\frac{\mathrm{PM}^2}{2\mathrm{MT} \times 59{\cdot}575}\right)$: : radius : S. L P M or $m\mathrm{P}\,l = \frac{\mathrm{PM}}{2\mathrm{MT} \times 59{\cdot}575}$. And if N be at Q, or the nodes in the quadratures, and P at A; then P M and P L being parallel to the ecliptic, m and l will be at an infinite distance, and then the angle mT l will be equal to mP l, whose sine is $\frac{\mathrm{PM}}{2\mathrm{MT} \times 59{\cdot}575}$. And the angle mT l answering to ^{2}M L is the motion of the node, whose sine is $\frac{\mathrm{PM}}{\mathrm{MT} \times 59{\cdot}575}$. Suppose P M to be described in an hour, then P M or the mean horary motion is 32′ 56″½, whose sine, as it differs insensibly from the arch, we shall have the arch = $\frac{32'\ 56''\frac{1}{2}}{59{\cdot}575}$ (putting P M = 1) = 33·18″, where all the angles P T K, P T N, and S T N are right angles. And in other cases, the horary motion of the node will be to 33·18″, as the product of the sines of the three angles P T K, P T N, and S T N, to the radius cube; and the nodes are regressive when all the sines are positive. But if any sine changes to be negative, the nodes will be progressive.

290. Hence the nodes are progressive, when the moon is between either quadrature, and the node nearest that quadrature; otherwise they are regressive. And by the excess of the regress above the progress, they are in the whole moved forward.

For in the arches Q A n and q B N, P K and P H are both affirmative or both negative. And in the arches N Q, nq, only one is negative, the other being affirmative.

If it were not for the sun's perturbating force, the moon would always describe the same ellipsis, and the transverse axis and eccentricity of the orbit would remain unaltered. But since the perturbating force of the sun always acts upon her more or less, and causes all the irregularities of her motion; it is evident that all these effects will be the greater as that force is the greater. But when the transverse axis, or line of the apsides, is in the syziges, then the perturbate force T M or 3 P K, fig. 13, plate IX., is the greatest possible, by which the moon is removed farther from the earth, and consequently the transverse axis is lengthened, and the eccentricity becomes greater. And the contrary happens when the transverse is in the quadratures; for by its being in the quadratures, the force L M is greater; and the whole centripetal force towards T being greater, the body will be drawn nearer the earth, and describe a less orbit, or one less eccentric than before. Therefore when the apsides are in the quadratures, the eccentricity is less; and when they are in the syziges, it is greater. But how much it is greater or less depends upon the mean eccentricity; and that depends upon observation.

292. Hence the eccentricity continually increases, as the apsides move from the quadratures to the syziges; and decreases from the syziges to the quadratures. And the eccentricity of the orbit continually increases, as the moon passes from the quadratures to the syziges; and decreases, in passing from the syziges to the quadratures. For the perturbating force increases from the quadratures to the syziges, and decreases from the syziges to the quadratures.

Sect. VI.—Of the Nature and Motions of Comets.

293. It is certain that comets are not meteors in our air, because they rise and set in the same manner as the moon and stars. It is long since astronomers had gone so far in their enquiries concerning them, as to prove by their observations that they moved in the celestial spaces beyond the moon; but they had no notion of the path which they described. Now the power of the sun being reciprocally in the duplicate proportion of the distance, every body acted upon by him must either fall directly down or move about him in one of the conic sections. If a

body which descends towards the sun as low as the orbit of any planet, move with a swifter motion than the planet, it will describe an orbit of a more oblong figure than that of the planet, and have at least a longer axis. The velocity of the body may be so great, that it shall move in a parabola, so that having once passed the sun, it shall ascend for ever without returning, though the sun will still continue in the focus of that parabola; and with a velocity still greater, they will move in a hyperbola. The best observations, however, show that the comets move in very eccentric ellipses; and hence those bodies are sometimes found at a moderate distance from the sun, and appear within the planetary regions; at other times they ascend to vast distances, far beyond the orbit of the most distant known planet, and become invisible.

294. The analogy between the periodic times of the planets, and their distances from the sun, discovered by Kepler, of course takes place, also in the comets, at least in those which revolve in elliptic orbits; and consequently, if the periodic time of a comet were known, its mean distance might be easily computed. Now the comet of 1759 is known to perform its revolution in seventy-six years nearly, whence it appears that its mean distance is about eighteen times that of the earth, or a little less than the mean distance of Uranus; but, in consequence of the great eccentricity of its orbit, its aphelion point, or the greatest distance from the sun, is nearly double that of the above planet. The perihelion distance of this comet is about six of the mean distance of the earth, which being taken from 36, the mean transverse axis of its orbit, leaves 35·4 for its aphelion distance, which is nearly double the greatest distance of Uranus, and about four times that of Saturn.

295. The above is the only comet whose periodic return has been ascertained, till the recent re-discovery of Enke's comet, and consequently the only one whose mean distance can be known; but with regard to the perihelion distance of these bodies, this may be determined by observations; and accordingly we have an account of this element of the orbits of about 100 comets, which have been observed with considerable accuracy. The greater number of these have had their perihelion point fall within the terrestrial orbit, and many of them at less than half the mean distance of the earth; but the comet of 1680 is that of all others which approaches the nearest to the sun, its perihelion distance being only ·006 of the perihelion of the earth, that is, about 540,000 miles from the sun's centre, and must, therefore, according to Newton, have been involved in its atmosphere. This comet also passed very near the terrestrial orbit, having been, according to Dr. Halley's calculation on the 11th of November, 1 h. 6 m. P. M., not more than one semi-diameter of the earth, or about 4000 miles to the northward of the earth's orbit, at which time had we been in this part of our track, the comet would have had a parallax exceeding that of the moon; and the mutual gravitation of the two bodies must have caused a change in the inclination of the earth's orbit, and in the length of the year; at the same time the waters on the earth would have been so elevated from the same cause, as would in all probability have caused a universal deluge, and reduced this beautiful frame to its original chaos.

296. The limits of a comet's distance may be easily ascertained from its tail, it being supposed to be directed from the sun. Let S, fig. 9, plate VI., be the sun, E the earth, E T the line in which the head of the comet appears, E W the line in which the extremity of the tail is observed, and draw S T parallel to E W; then the comet is within the distance E T. For if the comet were at T, the tail would be directed in a line parallel to E W, and therefore could never appear in that line. Now T E W is known from observation, and consequently its equal E T S, together with T E S, the angular distance of the comet from the sun, and E S to find S T, the limit of the comet's distance.

On the Orbits of Comets, and their Periodical Revolutions.

297. It is extremely difficult to determine from computation, the elliptic orbit of a comet to any degree of accuracy; for when this orbit is very eccentric, a very small error in the observation will change the computed orbit into a parabola, or hyperbola. Now from the thickness and inequality of the atmosphere with which the comet is surrounded, it is impossible to determine with any precision, when either the limb or centre of the comet pass the wire at the time of observation. And this uncertainty in the observations will subject the computed orbit to a great error. Hence it happened, that M. Bouguer determined the orbit of the comet in 1729 to be an hyperbola. M. Euler first determined the same for the comet in 1744; but having received more accurate observation, he found it to be an ellipse. The period of the comet in 1680 appears from observations to be 575 years, which M. Euler by his computation determined to be 166½ years.

298. The only safe way to get the period of comets, is to compare the elements of all those which have been computed, and where you find they agree very well, you may conclude that they are elements of the same comet; it being so extremely improbable that the orbits of two different comets should have the same inclinations, the same perihelion distance, and the places of the perihelion and node of the same. Thus, knowing the periodic time, we get the major axis of the ellipse, and the perihelion distance being known, the minor axis will be known. When the elements of the orbits agree the comets may be the same, although the periodic times should vary a little; as that may arise from the attraction of the bodies in our system, and which may also alter all the other elements in a small degree. The following approximating method of determining that part of a comet's orbit through which it moves, while it can be observed from the earth, is due to Boscovich.

299. Having collected the greatest possible number of observations, choose three of them which were taken when the comet was not too near its perihelion, (because near the perihelion the orbit does not differ sensibly from a circle), and

make these the basis of the operations: let S, plate VI. fig. 6, be the sun, U W the orbit of the earth, supposed here to be a circle, E the place of the earth at the first, e at the third, draw E,C, $e\,c$, to represent the observed directions of the comets, and let L, l, w, be the longitudes of the first, second, and third observations, m and n the geocentric latitudes of the first and third observation, and t, T, the intervals of time between the first and second, second and third observations. Assume C for the place of the comet at the first observation, reduced to the ecliptic; then, to determine the place of the third observation, say $T \times \text{sine } \overline{w-l} : t \times \text{sine } \overline{l-L} :: EC : e\,c$, and c will be nearly the place required: join C c, and it will represent the path of the comet on the ecliptic, according to this assumption. Draw C K, $c\,k$, perpendicular to the ecliptic, taking C K : E C : : tang M : radius, and $c\,k : e\,c$: : tang n : radius; join K k, and it will represent the orbit of the comet, if the first assumption be true. Bisect C c in x, and draw $x\,y$ parallel to C K, and K k will be bisected in y; join $y\,s$. Let S E=1; then if v be the mean velocity of the earth in its orbit, the velocity of the comet at $y = \frac{\sqrt{2 \times v}}{\sqrt{s\,y}}$ (Art. 586), taking therefore v=E e, compute $\frac{\sqrt{2 \times v}}{\sqrt{s\,y}}$ and if this be equal to Kk, the assumed point C was the true point.

300. But if these quantities be not equal, a new point must be assumed for C, in choosing which we must be directed by the nature and quantity of the error arising from the first assumption; thus if the computed value of Kk, be greater than its value measured in the figure, and the lines C K, $c\,k$ diverge from each other as they recede from the sun, the point c must be taken farther from E by how great a quantity we must conjecture from the magnitude of the error, and from the consideration that the comet's velocity diminishes as it recedes from the sun. Find C K, $c\,k$, as before, and compare the measured and computed value of K k; and if a fresh assumption be necessary, make it in conformity to the considerations above suggested. Having thus ascertained the position of the points C, c, very nearly produce c C, k K to meet at N; join N S, and it will be the line of the nodes; and if C r, $c\,z$, be drawn perpendicular to N S, either of the angles K r C, $k\,z\,c$ will measure the inclination of the orbit. Also from the two distances S C, S c, and the included angle C S c, the parabola may be easily constructed; thus, having set off S C, S c (fig. 10, plate VI.) in their proper relative position, with the centres C, c, and radii equal to S C, S c, describe the arcs a R o, $e\,r\,i$, and draw the line R $r\,d$ to touch those arcs, this line will manifestly be the directrix of the parabola: which, being known, together with the focus S and the determining ratio (that of equality), the parabola may be constructed.

301. Or, letting fall S D perpendicularly upon R D, and bisecting it in A, the vertex and focus of the parabola A c C will be known; whence it may be drawn by well-known methods. From either of these constructions, the ratio of the comet's perihelion distance S A (fig. 1. plate IX.) to the earth's mean distance S E (fig. 10. plate VIII.), will be known, and consequently the comet's velocity in perihelion: the velocity in either of the points C, or c, will be determined by the observations; and since the angular distances are reciprocally as the squares of the distances from the centre of force, the S C, S c, are hence found in terms of S E: if these agree nearly with the construction, the assumptions have been properly made; if not, some farther corrections are necessary. The angles A S C, A S c, may either be measured or calculated from the known distances; then having the perihelion distance and the true anomaly, the time from the perihelion may be determined, whence, as the observations will show, whether the comet be approaching to, or receding from, the perihelion, an epoch of the perihelion will readily be ascertained.

302. When a parabola is found to agree nearly with the given positions, it is needless to continue the approximation farther; for if the observations are accurate, we cannot expect a parabola to agree perfectly with them; if the body move in an ellipsis, as it is highly probable that all these bodies do. If the observations are only nearly accurate, a parabola found to agree with them, might probably not agree with other observations made upon the comet.

Sect. VII.—Of the Bodies of the Sun and Planets, the Quantity of Matter they contain, and their Densities.

303. The primary planets and comets being retained in their orbits by a power directed towards the sun, and the secondaries being also retained by a similar power directed to the centre of the primaries, the same power is diffused through their whole substance, and inherent in every particle. This is proved by showing that each of the heavenly bodies attracts the rest, and other bodies, with such different degrees of force, as that the force of the same attracting body is exerted on others, exactly in proportion to the quantity of matter contained in the body attracted.

304. The first proof of this is from the experiments made on bodies on our earth. Pendulums vibrate by the same power which makes heavy bodies fall to the ground; but if the ball of any pendulum of the same length with another were more or less attracted in proportion to the quantity of solid matter it contains, that pendulum would vibrate faster or slower than the other. Now the vibrations of pendulums continue for a long time, and the number of vibrations they make may be easily and correctly determined; and Newton assures us that he examined several substances, as gold, silver, lead, glass, sand, common salt, wood, water, and wheat; in all which he found not the least deviation from the theory, though he made the experiment in such a manner that, in bodies of the same weight, a difference in the quantity of their matter less than the thousandth part of the whole would have discovered itself.

305. It appears, therefore, that all bodies are made to descend here by the power of gravity with the same degree of swiftness. This descent

has been determined at $16\frac{1}{12}$ feet in a second from the beginning of their fall. If any terrestrial body could be conveyed as high as the moon, it would descend with the very same velocity as the incremental deflection of the moon towards the earth; and therefore the power of the earth upon the moon is in the same proportion to its force on other bodies at the same distance as the quantity of matter in the moon bears to the quantity in those bodies. Thus with respect to the earth, its power on every body it attracts is, at the same distance from the earth, proportional to the quantity of solid matter in the body acted upon.

306. As to the sun, the power of his action upon the same primary planet is reciprocally in the duplicate proportion of its distance; and that his power decreases throughout in the same proportion, is testified by the motion of the planets traversing the whole planetary regions. Hence if any planet were removed from the sun to any distance whatever, its tendency towards the sun would yet be reciprocally in the duplicate proportion of the distance. But the degree of acceleration given to the planets by the sun is observed to be reciprocally in the duplicate proportion of their respective distances; from this we may safely infer, that the power of the sun upon any planet removed into the place of any other, would give it the same velocity of descent as it gives that other; and consequently, that the sun's action upon different planets at the same distance would be proportionable to the quantity of matter in each. The sun attracts the primary planets and their respective secondaries, when at the same distance, in such a manner as to communicate to both the same degree of velocity; and therefore the force wherewith the sun acts on the secondary planet, bears the same proportion to the force wherewith it attracts the primary, as the quantity of matter in the secondary planet bears to the quantity of matter in the primary.

307. This property therefore is found in the sun with regard to both kinds of planets; so that he possesses the same quality found in the earth, viz. that of acting on bodies with a degree of force proportional to the quantity of matter they contain. All the phenomena of the planetary motions produced by their mutual attractions agree precisely with this law of force; and we are thence warranted in concluding, that this is the principle which the great Author of nature has appointed to regulate the motions at least of the system to which we belong.

308. In a word, the attractive power both of the sun and the planets appears to be the same; for it acts in each in the same proportion to the distance, and alike upon every particle of matter. This power therefore in the sun and planets, is the same in its nature as the power of gravity in the earth; and hence the attracting power lodged in the sun and planets belongs likewise to every part of them; and their respective powers upon the same body are proportional to the quantity of matter of which they are composed; for instance, the force with which the earth attracts the moon, is to the force with which the sun would attract it at the same distance, as the quantity of solid matter in the earth is to that in the sun.

309. The rule that action is equal to re-action holds good in attractive powers as well as in any other powers. The most remarkable force of this kind with which we are acquainted, next to that of gravity, is the attraction which the loadstone has for iron. Now if a loadstone and piece of iron are both made to swim on water, they move towards each other, and thus the attraction is shown to be mutual; and when they meet, they mutually stop each other; which shows that their velocities are reciprocally proportioned to the quantities of solid matter in each; and that by the stone's attracting the iron, it receives as much motion itself, in the strict philosophic sense of the word, as it communicates to the iron.

310. From this mutual action of the sun and planets upon each other, it follows, as has been already mentioned, that they both revolve about their common centre of gravity. Thus let A (in plate IX. fig. 7.) represent the sun, B a planet, and C their common centre of gravity. If these bodies were once at rest, they would directly approach each other by their mutual attraction, and that with such velocities, that their common centre of gravity would remain at rest, and they would meet in that point. Were the planet B to receive an impulse, as in the direction B E, this would prevent the two bodies from falling together; but their common centre of gravity would be put into motion in the direction of the line C F, parallel to B E. In this case, the sun and planet would describe round their common centre of gravity similar orbits, while that centre would proceed with an uniform velocity in the line C F, and so the system of the two bodies would move on with the centre of gravity without end. In order to keep the system in the same place, it is necessary, that when the planet received its impulse in the direction B E, the sun should receive such another the contrary way, so as to keep the centre of gravity, C, without any motion, in which case it would always remain fixed.

311. The action therefore between the sun and planets is mutual. The power which acts between the sun and primary planets is of the same nature with that which acts between the secondary planets and their primaries, or between the earth and bodies near its surface. In different planets the force of the sun's action upon each at the same distance, would be proportional to the quantity of solid matter contained in the planet: therefore the re-action of the planet on the sun at the same distance, or the motion which he would receive from each planet, would also be proportional to the quantity of matter in the planet; that is, these planets, at the same distance, would act on the same body, with the degrees of strength proportioned to the quantity of solid matter contained in each.

312. From these principles Newton has proved that the particles of which the sun, moon, and planets are formed, exert their power of gravitation by the same law, and in the same proportion to the distance, as the great bodies they compose.

313. The following propositions constitute the principal steps in the process of the investigation. In fig. 4, plate VI., if A C is perpendicular to A B, and a corpuscle at C is attracted

towards every particle of the line A B, by forces inversely as the squares of the distances, then the whole force which the particles in A B exert upon C, in the direction A C, is as $\frac{AD}{CA + CD}$. For put $AC = a$, and AD, any variable part of $AB = x$; then the force of a particle at D being as $\frac{1}{CD^2}$ in the direction DC, its force in the direction AC, will be as $\frac{AC}{CD^3}$; or as $\frac{a}{(a^2 + x^2)^{\frac{3}{2}}}$. Hence $\frac{a\dot{x}}{(a^2 + x^2)^{\frac{3}{2}}}$ represents the fluxion of the whole force, whose fluent is $\frac{x}{a \cdot (a^2 + x^2)^{\frac{1}{2}}}$, or $\frac{AD}{CA \times CD}$.

314. Again, let B C D E, plate VI. fig. 5, represent a circular plane, and H a corpuscle perpendicularly over its centre, then if the forces with which each particle in the plane acts upon H be inversely as the squares of the distances, the force with which H will be urged towards the plane will be represented by $\left(1 - \frac{AH}{BH}\right) 2p$; p being $= 3{\cdot}14159$, &c. For let $AH = a$, and $Hl = x$; then $A\,b^2 = x^2 - a^2$; and $p \cdot A\,b^2 = p\overline{x^2 - a^2}$ = the area of the circle, A c d b e; and the fluxion of the area of this circle is $2p\,x\dot{x}$. But the force of a particle at b in the direction HA is as $\frac{AH}{Hl^3}$, or $\frac{a}{x^3}$, by the preceding proposition; therefore the fluxion of the whole force will be $\frac{2apx\dot{x}a}{x^3} = \frac{2ap\dot{x}}{x^2}$. The fluent of this corrected, gives $2p \times 1 - \frac{a}{x} = 2p \times 1 - \frac{AH}{BH}$ for the whole force.

315. To apply this to the determination of the law of force, by which a particle without a sphere would be acted upon by that sphere, the law of force of each particle in the sphere being inversely as the squares of its distance; let A B E C, plate VI. fig. 3, represent a section of a sphere of which the centre is F; let H be the particle, draw B C perpendicular to H E, join H B and B A. Put $AF = a$, $FH = b$, $AH = b - a = C$, $HD = y$ and $HB = c + x$; then $AD = y - c$, $ED = 2a - y + C$, and hence $BD^2 = AD \cdot DE = HB^2 - HD^2$, or $y - c \times 2a - y + c = c + x^2 - y^2$, an equation from which we get $y = \frac{2ac + 2c^2 + 2cx + x^2}{2a + 2c} = \frac{2bc + 2cx + x^2}{2b}$, as $a + c = b$. Hence, the attractive force of the particles on the circle whose diameter is B C is, by the last proportion, $= 2p \times 1 - \frac{HD}{HB} = 2p \times \left(1 - \frac{2bc + 2cx + x^2}{2b \times c + x}\right) = \frac{2p \times 2ax - x^2}{2b}$; which multiplied by $\frac{c\dot{x} + x\dot{x}}{b} =$ gives $\frac{p \times 2ax\dot{x} - \dot{x}\dot{x}}{b^2}$ for the fluxion of the required force, and the fluent of this expresssion, $\frac{p \times ax^2 - \frac{1}{3}x^3}{b^2}$ is the force of the segment A B C, and therefore when B coincides with E, or $x = 2a$, this expression becomes $\frac{4pa^3}{3b^2}$ the attractive force of the whole sphere.

316. If the particles, of which the globe is composed, acted upon those without in the reciprocal duplicate proportion of their distances, the whole globe would hence act upon them in the same manner as it does; but, if the particles of the globe have not all of them that property, some must act in a greater, and some in a less proportion; and if this be the condition of the globe, it is plain that when the body attracted is in such a situation in respect of the globe, that the greater number of the strongest particles are nearest to it, the body will be more forcibly attracted than when, by turning the globe about, the greater quantity of weak particles should be nearest, though the distance of the body should remain the same from the centre of the globe; which is contrary to what was at first remarked, that the globe acts equally on all sides. If all the particles of the globe attract all the particles of another in the proportion already mentioned, the attracting globe will act upon the other in the same proportion to the distance between the centre of the globe which attracts, and the centre of that which is attracted: and the proportion holds true, though either or both of the globes be composed of dissimilar parts, some rarer, and some more dense; provided only that all the parts in the same globe, equally distant from the centre, be homogeneous, and likewise if both globes attract each other.

317. It is thus shown, that this power in the great bodies of the universe is derived from the same being lodged in every particle of the matter which composes them; and consequently that it is universal in matter, though the power is too minute to produce any visible effects on the small bodies with which we are conversant, by their action on one another. In the fixed stars indeed we have no particular proof that they have this power, as we find no appearance to demonstrate that they either act or are acted upon by it. But since this power is found to belong to all bodies whereon we can make observation, and we find that it is not altered by any change in the shape of bodies, but accompanies them in every form without diminution, being ever proportional to the quantity of solid matter in each, it is highly probable that such a power belongs universally to all matter.

318. From the times in which the satellites perform their revolutions, compared with their distances from their respective primaries, the proportion between the power with which one primary attracts his satellites, and the force with

which any other attracts his, may be found; and the proportion of the power with which any planet attracts his secondary to the power with which it attracts a body at its surface, is found by comparing the distance of the secondary planet from the centre of the primary with the distance of the primary planet's surface from the same; and from hence is deduced the proportion between the power of gravity upon the surface of one planet to the gravity upon the surface of another.

319. In a like manner by comparing the periodical time of a primary planet about the sun, with the revolution of a satellite about its primary, may be found the proportion of gravity, or of the weight of any body, on the surface of the sun, to the gravity or to the weight of the same body upon the surface of the planet which carries about the satellite.

320. Amongst the ancient mathematicians, nothing could have appeared more completely out of the reach of human intellect, than by calculation to determine the internal structure of remote and inaccessible bodies, that is, than to find the densities of the planets. Such, however, has been effected in modern times. The density of a planet can be found by comparing the velocity in its orbit round the sun with the velocity of its satellite, or by determining the distance which it deflected from its tangent in one second of time, comparing its angular velocity with the mean radius of its orbit, and by knowing the space which a heavy body falls through in one second by the force of gravity at its surface.

321. To understand the principle upon which this determination rests, we may observe that the effect of attraction at equal distances will be in proportion to the quantity of matter in the attracting body; and at different distances, as the quantity of matter and the inverse square of the distance conjointly. The quantity of matter is also in proportion to the magnitude of the body and its density conjointly. If therefore we know the effects of the attraction of different bodies, together with their magnitudes, we can find their densities, and thence their quantities of matter.

To find their densities, put

d = the density of the celestial object,
m = its diameter,
a = its quantity of matter,
P = the periodic time of the revolving body,
D = the mean distance of the revolving body from its central body,
s = the sine of the angle under which m appears at the distance D, to radius unity.

Then a varies as $d\,m^3$, and P^2 varies as $\frac{D^3}{a}$, or as $\frac{D^3}{d\,m^3}$; hence, d varies as $\frac{D^3}{m^3\,P^2}$, but $s = \frac{m}{D}$; hence, d varies as $\frac{1}{s^3\,P^2}$.

From this we conclude that the logarithm of the density varies as $3 \times \log.\frac{D}{m} - 2 \log. P$. But, in order to make the comparison between different planets as simple as possible, we shall suppose the density of the sun to be 1, and find a logarithm, which, taken from the above formula, will make it so. For this purpose we shall take the diameter of the sun = 883,217 miles, its distance from the earth 95,000,000 miles, and the earth's periodic time 365·2564 days. Hence, we have —

Log. D = log. 95000000 = 7·9777236
Log. m = log. 883217 = 5·9460674

2·0316562 × 3 = 6·0949686
Log. P = log. 365·2564 = 2·5625978 × 2 = 5·1251956

0·9697730

the logarithm of the sun's density. But the logarithm of 1 is 0; hence the logarithm of the density of a planet is to that of the sun, considered as unity, as 1 to $3 \times \log.\frac{D}{m} - 2 \log P - 9697730$.

323. To find the density of the earth, we take the moon as the revolving, and the earth as the central body. D = 240000, m = 7955, and P = 27·32167; and $3 \times \log.\frac{D}{m} - 2$ log. P — ·9697730 is then equal to · 5959255, the log. of 3·9439.

To find the density of Jupiter. If we take the first satellite as the revolving body, we shall have $\frac{D}{m}$ = 2·8385 and P = 1·7691; hence $3 \times \log.\frac{D}{m} - 2 \log. 9697730$ is then equal to 1·8916918 the log. of ·7793.

324. Again, if we take the fourth satellite, we shall have $\frac{D}{m}$ = 12·65 and P = 16·68898, therefore $3 \times \log.\frac{D}{m} - 2 \log. P - 9697730$ is the equal to — 1·8916389 the log. of ·7792.

325. To find the density of Saturn, if we take the second satellite we shall have $\frac{D}{m}$ = 2·75, and P = 2·7368, therefore $3 \times \log.\frac{D}{m} - 2 \log. P - 9697730$ is equal to — 1·4737389, the log. of ·2977. Let us take the fifth; then we have $\frac{D}{m}$ = 27, and P = 79·3196. Hence $3 \times \log.\frac{D}{m} - 2 \log. P - 9697730$ is equal to — 1·5255573 the log. of ·3354.

326. To find the density of Uranus, if we take the third satellite we shall have $\frac{D}{m}$ = 9·5, and P = 10·9611, then $3 \times \log\frac{D}{m} - 2$ log of P — ·9697730 is equal to — 1·8836886, the log. of 7650.

Again, let us take the sixth satellite, and we shall have $\frac{D}{m}$ = 44, and P = 107·6944; hence, $3 \times \log.\frac{D}{m} - 2 \log. P - 9697730$ is equal to

— 1·8961985 the log. of ·7874. A trifling difference, either in the periodic time, or the distance of the satellite, will make a considerable difference in the density of the primary; and hence, if these be not very correct, the density cannot be depended on with any degree of accuracy.

327. The above are the only planets whose densities can be found by this method. Those which have no satellite, have obliged astronomers to have resource to a method much less accurate, depending on the effect, which by observation the planet is found to produce in disturbing the motions of the other planets. Dr. Maskelyne makes the density of Venus 1·024, and M. de la Lande 1·038, that of the earth being 1. Laplace concludes the density of Mars to be ·6563, and of Mercury 2·5833, the earth being 1. The density of the moon has been estimated at 1·456 times the density of the earth.

If the density of the earth be taken equal to 4½ times that of water, we shall have the densities, or specific gravities, of the planets in the following proportions:—

Sun	1·1410 nearly	= to the specific gravity of opaque copal
Mercury	11·6250	. . . lead
Venus	4·6395	. . . molybdæna
Earth	4·5000	. . . ponderous spar
Moon	6·5520	. . . cast antimony
Mars	2·9533	. . . flint glass
Jupiter	0·8891	. . . mulberry tree
Saturn	0·3612	. . . poplar
Uranus	0·8856	. . . beech tree.

PART III.

EXPLANATION OF THE CELESTIAL PHENOMENA, ACCORDING TO THE NEWTONIAN DOCTRINE.

Sect. I.—Of the Circles, Nodes, Aspects, Conjunctions, &c. of the Planets.

328. To a spectator placed in the sun all the planets would appear to describe circles annually in the heavens; for, though their motions are really elliptical, the eccentricity is so small, that the difference between them and true circles is not easily perceived, even on earth; and at the sun, whether great or small, it would entirely vanish. These circles, which in such a situation would appear to be annually described among the fixed stars, are called the heliocentric circles of the planets. To a spectator in the sun, the comets, though moving in the most eccentric orbits, would also appear to describe circles in the heavens: for, though their orbits are in reality very long ellipses, the planes of them extended to the heavens would mark a great circle of which the eye would be the centre; only, as the real motion is in an ellipsis, the body would appear to move much more slowly in some part of the circle than another, and to differ excessively in magnitude.

329. To an inhabitant of any planet, however, the sun appears to go round in its own heliocentric circle, or to describe in the heavens that same curve, which the planet would appear to do if seen from the sun. Thus, in plate XVI. fig. 8, when the earth is at *a*, if we draw a line from *a* through the sun at S, the point G, in the sphere of the heavens where the line terminates, is the place where the sun then appears to an inhabitant of the earth. In a month's time the earth will go from *a* to *b*; draw a line then through the sun, and its extremity at H will point out his apparent place at that time. In like manner, if we draw lines from the earth in twelve several situations, in which it is represented for the twelve months of the year, the sun's apparent place will be found as above; and so it would be found by a spectator placed in Venus, or any other planet.

330. The heliocentric circle of the earth is called the ecliptic; because eclipses of the sun or moon can only happen when the latter is in or near it. By some ancient writers it has been called the circle of the sun, or the oblique circle, because it cuts the equator at oblique angles. It is also called by Ptolemy the circle which passes through the midst of the animals; because the twelve constellations through which it passes, were anciently all represented by animals, or parts of them, though now the balance is introduced in place of the claws of the scorpion. For this reason a belt, taken in the concave sphere of the heavens, about ten degrees on each side of the ecliptic, is called the zodiac, from ζωον, an animal, and the constellations through which the ecliptic is drawn, are called the constellations of the zodiac.

331. Although the sun apparently goes round the earth annually in this circle, we cannot determine his place by mere inspection, as we can do that of any other heavenly body; for the fixed stars are the only marks by which we can determine the place of any of the celestial bodies; and the superior brightness of the sun renders them totally invisible, except in the time of a great eclipse, when his light is for a time totally obscured. But though we cannot know the place of the sun directly, it is easily found from a knowledge of those fixed stars which are opposite to him.

332. Thus, in plate IX. fig. 9, suppose it the time of the year in which the earth is at *g*, if we know that the point G is then diametrically opposite to the sun, we know that A, its opposite, is the sun's place, and consequently, by finding the places throughout the year diametrically opposite to the sun, as G H I K L M A B C D E F, we may be assured that in these times the sun's place was in the points A B C D E F G H I K L M. The point in the heavens diametrically opposite to the sun may be known every night at twelve o'clock when the stars are visible; for the star which has an elevation above the horizon, at that time equal to the sun's depression below it, is directly opposite to him.

333. When the position of the ecliptic is thus determined, the latitude of the moon, or any star, is measured by its distance from the ecliptic, in the same manner as the latitudes of places on the earth are reckoned by their distance from the equator, and circles passing through the poles of the ecliptic at right angles to its plane, are called circles of latitude. The declination of any celestial body is its deviation from the equator towards the pole nearest to it.

334. The latitude of any planet is either heliocentric or geocentric. The heliocentric latitude is its distance from the ecliptic as seen from the sun, and its geocentric as seen from the earth. As the orbits of the planets are inclined in different angles to the ecliptic, the heliocentric latitude of any planet, is almost always different from its geocentric latitude. Thus, let A B, plate VII. fig. 11, be the orbit of the earth, C D the orbit of Venus, viewed with the eye in their common section, wherein they appear straight lines; let E and F be two opposite points of the ecliptic; and suppose Venus to be in the point C. If she were at that time viewed from the sun S, she would appear in the point of the heavens marked H, and her heliocentric latitude is then F H; but if viewed from the earth in B, she will appear at *g*; and her geocentric is only F *g*.

335. The planets Mercury and Venus, whose orbits are included in that of the earth, are called inferior; and Mars, Jupiter, Saturn, and the Georgium Sidus, are called superior planets. The two points where the heliocentric circle of any planet cuts the ecliptic, are called its nodes; and that which the planet passes through as it goes into north latitude, is called the ascending node, and is marked thus ☊; and the opposite to this is called the descending node, and is marked ☋. A line drawn from one node to the other is called the line of the nodes of the planet, which is the common section of the plane of the ecliptic, and that of the planet produced on each side to the fixed stars.

336. The zodiac is either astral or local. The astral is divided into twelve unequal parts, because it contains twelve celestial constellations, some of which are larger than others. The local zodiac is divided into twelve equal parts, called signs, each containing thirty degrees. These are counted from the point where the equator and ecliptic intersect each other at the time of the vernal equinox; and are denoted by particular marks, according to the apparent annual motion of the sun. See plate V. fig. 6. A motion in the heavens in the order of these signs, as from Aries to Taurus, is said to be a motion in consequence; and such are the true motions of all the planets, though their apparent motions are sometimes contrary, and then they are said to move in antecedence. The local zodiac is not always invariably the same as to the places of the several signs, though the whole always takes up the same place in the heavens, viz. ten degrees on each side the ecliptic. The points where the celestial equator cuts the ecliptic, are found to have a motion in antecedence of about fifty seconds a year.

337. This change of place of the first point of the ecliptic, from whence the signs are counted, occasions a like change in the signs themselves; which, though scarcely sensible for a few years, has now become very considerable. Thus, since astronomy was first cultivated among the Greeks, which is about 2000 years ago, the first point of the ecliptic is removed backward above a whole sign: and, though it was then about the middle of the constellation Aries, is now about the middle of Pisces. Notwithstanding this alteration, however, the signs still retain their ancient names and marks. When the zodiac is mentioned by astronomers, the local zodiac is generally meant.

338. The longitude of a phenomenon in the heavens is in the number of degrees counted from the first point of Aries on the ecliptic to the place where a circle of latitude drawn through the phenomenon would cut the ecliptic at right angles. Every phenomenon in the heavens, whether in the zodiac or not, is thus referred to the ecliptic by its circle of latitude, or great circle, passing through the phenomenon, and cutting the ecliptic at right angles; and whatever sign the circle of latitude passes through, the phenomenon is said to have its place in that sign, though ever so far distant from it.

339. Some astronomers make the local zodiac invariable; for which purpose they imagine a circle of latitude drawn through the first star of the constellation Aries, marked in Bayer's catalogue by the Greek letter γ; and reckon their longitude from the point where that circle cuts the ecliptic. This star is called the first star of the Ram; and, when this method is made use of, the longitude of any phenomenon is said to be so many signs, degrees, minutes, &c. from the first star of the Ram. Thus, in Street's Caroline Tables, the longitude of Jupiter's ascending node is two signs eight degrees from the first star of Aries, which is thus marked: Long. ♃ ☊ *a* 1* ♈ 2ˢ 8°. The common way of reckoning the longitude of a phenomenon, is to take ♈ for the first point of the ecliptic, and not to number the degrees quite round that circle as a continued series, but to make a new beginning at the first point of every sign, and to reckon from thence only the length of 30°. When this method is made use of, the longitude of any phenomenon is expressed by saying it is in such a degree, and such a minute of a sign: and thus we may express the longitude of the ascending node of Mercury, ☿ ☊ ♉ 13° 40′, and so of any other. The place of a phenomenon in the heavens is expressed by setting down its longitude and latitude.

340. Every planet, like the moon, is sometimes in conjunction with the sun, and sometimes in opposition. Its conjunction is when the geocentric place of the planet is the same with that of the sun; though an exact or central conjunction can only take place when the line of its nodes passes through the earth, and the planet itself is in one of its nodes at the time. It is however, in general, called a conjunction or opposition, when the same circle of latitude passes through the sun and planet at the same time. When the geocentric place of a planet is 90°, or a quarter of a circle from the sun's place, the planet is said to be in quadrature or in a quartile aspect with the sun; and these terms are used in a like sense when applied to any two of the heavenly bodies. Thus the sun and moon, or the moon and any planet, or any two planets, may be in conjunction, opposition, or quadrature.

341. Besides these, the ancients reckoned two other aspects, the trine and the sextile; the former when the bodies were distant 120°, and the latter when only half that distance. These aspects are marked thus:

Conjunct.	Opposition	Quadra.	Trine	Sextile
☌	☍	□	△	✶

The aspects were formerly supposed to influence the affairs of mankind; but astrology, which treated of these influences, is now justly rejected.

342. The inferior planets have two kinds of conjunction with the sun; one in the inferior part of their semicircles, the other in the superior part. In the former the planet is between the earth and the sun; and in the latter the sun is between the earth and planet. The inferior planets can never be in opposition to the sun, nor even appear at a great distance from him. The length they go is called their elongation. Thus, in plate IX. fig. 11, let OPQRT be part of the ecliptic; S the sun; and the three circles round him the orbits of Mercury, Venus, and the earth. Suppose the earth to be at A, the sun's geocentric place will be at Q. If Mercury be then at I, his geocentric place is likewise at Q; so that he is in conjunction with the sun in his inferior semicircle: if at M, his geocentric place is likewise at Q; so that he is in conjunction in his superior semicircle.

343. In like manner, Venus at E is in conjunction in her inferior semicircle, at G in her superior: but if we suppose the earth to be at A, and Venus at H, her geocentric place is T, and her elongation QT, which in this figure is the greatest possible; for this always takes place when a straight line from the earth touches the orbit of the planet, as is evident from the figure; that is, provided the planet be in its aphelion at the time. Thus the greatest possible elongation of Mercury is QP when he is in his aphelion at L; and the quantity of this is found by astronomical observations to be about twenty-eight degrees, and that of Venus about forty-eight. The inferior planets in their elongations are sometimes eastward and sometimes westward of the sun; in the former case they appear in the evening, and in the latter in the morning. The smallness of Mercury and his nearness to the sun prevent him from being often taken notice of; but the largeness and beauty of Venus have made her, in all ages, celebrated as the evening and morning star.

344. The planets sometimes appear to go forward, sometimes backward, and sometimes to stand still. These different conditions are by astronomers called direct, retrograde, and stationary. Were they to be viewed from the sun they would always appear direct; but when viewed from the earth, the inferior planets appear direct while moving in their upper semicircles, and retrogade when in their lower ones. Thus in plate IX. fig. 11, suppose the earth at rest at A, while Mercury is going on his orbit from N to I, and from I to L, his motion appears to an observer at A to be retrograde, or contrary to the order of the signs, namely from R to Q and from Q to P; but when in that part of his orbit which lies between L and N, his motion appears direct, or from P to Q and from Q to R.

345. When the earth is in the line of nodes of an inferior planet, the apparent motion of the former is then in a straight line, because the plane of it passes through the eye; if in a conjunction in his upper semicircle, he passes behind the sun; if in his lower semicircle, he passes before it, and will then be seen by an observer on the earth to pass over the sun's disk like a round and very black spot. Were the plane of his orbit coincident with the ecliptic, this appearance would be seen every year; but by reason of the obliquity of the two planes to each other, it is much more rare.

346. Mercury, however, was seen in this manner November 12th, 1782, at 3 h. 44 m. in the afternoon; May 4th, 1786, at 6 h. 57m. in the morning; and December 6th, 1789, at 3 h. 55 m. in the afternoon; but was not seen again, in this island at least, until the year 1799, May 7th, at 2 h. 34 m. in the afternoon. In like manner, Venus sometimes appears as a black spot on the sun, but more seldom than Mercury. She was thus seen first in 1639; afterwards in the years 1761 and 1769; but will not again be visible in this manner till the year 1874.

347. When the earth is out of the line of the nodes of an inferior planet, its orbit appears an ellipsis, more or less eccentric, according to the situation of the eye of the spectator. In these cases the motion of Mercury is unequal; faster near the inferior conjunction, but most unequal in the inferior semicircle, going through the unequal spaces into which the ellipsis is divided. The motions of the inferior planets, both direct and retrograde, are very unequal; and this inequality proceeds not from the eccentricity of their orbits, but from the projection of their orbits into long ellipses, and is therefore a mere optical deception.

348. These planets appear stationary while changing their motion from direct to retrograde, or from retrograde to direct. If the earth stood still, the times of their appearing stationary would be at their greatest elongation; for though it be a property of the circle, that a straight line can only touch it in one point, yet when the circle is very large, the recess from the tangent is not perceptible for a considerable time. Thus in plate IX. fig. 11, suppose the earth to be at rest in A Venus would appear stationary, her geocentric place continuing at T all the while she is going in her orbit from *a* to *b*; because her deviation from the visual line AT would scarcely be perceptible so near the point of contact H.

349. The inferior planets, therefore, to an inhabitant of the earth, appear always near the sun alternately going from and returning to him, sometimes in straight lines, at others in elliptical curves, first on one side and then on the other; sometimes so near as to be rendered invisible by his stronger light. Sometimes, when in or near their nodes, they pass behind the sun in their superior semicircles, or pass between him and us; in which case they appear like black spots on his disk, as above-mentioned. For the better comprehending of these motions, however, we have hitherto supposed the earth to stand still in some part of its orbit, while they go round the sun in theirs; but as this is not the case, it now remains to consider the changes which take place in consequence of the earth's motion.

350. Were the earth to stand still in any part of its orbit, as at A, the places of conjunction, both in the superior and inferior semicircle, as also of the greatest elongation; and, consequently,

the places of direct and retrograde motion, and of the stations of an inferior planet, would always be in the same part of the heavens. Thus, in plate IX. fig. 11, upon this supposition, the places of Mercury's stations would always be the points P and R, the arc of his direct motion P R, and of his retrograde motion R P; whereas, on account of the earth's motion, the places where these appearances happen are continually advancing forward in the ecliptic, according to the order of the signs. In fig. 10, plate VIII., let A B C D be the orbit of the earth; *e f g h* that of Mercury, ⊙ the sun; G F K I an arc of the ecliptic extended to the fixed stars. When the earth is at A, the sun's geocentric place is at F; and Mercury, in order to a conjunction, must be in the line A F; that is, in his orbit he must be at *f* or *h*. Suppose him to be at *f*, in his inferior semicircle; if the earth stood still at A, his next conjunction would be when he is in his superior semicircles at *h*; the places of his greatest elongation also would be at *e* and *g*, and in the ecliptic at E and G; but supposing the earth to go on in its orbit from A to B, the sun's geocentric place is now at K; and Mercury, in order to be in conjunction, ought to be in the line B K at *m*. As by the motion of the earth, the places of Mercury's conjunctions with the sun, are thus continually carried round in the ecliptic, in consequence, so the places of his utmost elongations must be carried in consequence also. Thus, when the earth is at A, the places of his greatest elongation from the sun are in the ecliptic E and G; the motion of the earth from A to B advances them forward from G to L, and from E to I.

351. The geocentric motion of Venus may be explained in a similar manner; only as the motion of Venus is much slower than that of Mercury, his conjunctions, oppositions, elongations, and stations, all return much more frequently than those of Venus.

352. To explain the stationary appearances of the planets, it must be remembered that the diameter of the earth's orbit, and even of that of Saturn, are but mere points in comparison of the distance of the fixed stars; and, therefore, any two lines, absolutely parallel, though drawn at the distance of the diameter of Saturn's orbit from each other, would if continued to the fixed stars, appear to us to terminate in the same point. Let the two circles, plate IX. fig. 4, represent the orbits of Venus and of the earth; let the lines A E, B F, C G, D H, be parallel to S P; we may nevertheless affirm that, if continued to the distance of the fixed stars, they would all terminate in the same point with the line S P. Suppose, then, Venus at E, while the earth is at A, the visual ray, by which she is seen, is in the line A E. Suppose again, that while Venus goes from E to F, the earth goes from A to B, the visual ray, by which Venus is now seen, is B F, parallel to A E; and therefore, Venus will be all that time stationary, appearing in that point of the heavens where S P extended would terminate; this station is at her changing from direct to retrograde. Again, suppose, when the earth is at C, Venus is at G, and the visual line C G; if, while the earth goes from C to D, Venus goes from G to H, so that she is seen in the line G H, parallel to C G, she will be all that time stationary, appearing in the point where a line drawn from S through P would terminate. This station is at her changing from retrograde to direct; and both are in her inferior semicircle.

353. An inferior planet, when in conjunction with the sun, in its inferior semicircle, is said to be in perigee, and when in the other, to be in apogee, on account of its different distances from the earth. Their real distances from the earth when in perigee are variable, partly owing to the eccentricities of their orbits, as well as that of the earth; and partly owing to the motions of the different bodies, by which it happens that they are in perigee, in different parts of their orbits. The least possible distance is when the perigee happens at the time that the earth is in its perihelion, and when the planet is in its aphelion.

354. The difference of distance between the earth and inferior planets, at different times, makes a considerable variation in their apparent diameters, which indeed is very observable in all the planets; and thus, they sometimes look considerably larger than at others. This difference of magnitude in Mercury is nearly as 5½ to 1; and in Venus, no less than 32 to 1. Any person, unassisted by instruments, may observe an inferior planet alternately approach nearer and nearer the sun, until at last it comes into conjunction with him, and then recedes farther and farther, till it is at its greatest elongation, which will be first on one side, and then on the other; but, if we observe the apparent change of place, of an inferior planet, in the sphere of the heavens, its direct motions, stations, and retrogradations, measuring its diameter frequently with the micrometer, we shall find, by its decrease at some times, and increase at others, that its distance from us is very considerably varied.

355. As the superior planets move in a larger orbit than the earth, they can only be in conjunction with the sun, when they are on that side opposite to the earth; as, on the other hand, they are in opposition to him, when the earth is between the sun and them. They are in quadrature with him, when the geocentric places are 90° distant from that of the sun. In order to understand their apparent motions, we shall suppose them to stand still, in some part of their orbit, while the earth makes a complete revolution in hers; in which case, any superior planet would then have the following appearances:

356. 1. While the earth is in her most distant semicircle, the motion of the planet will be direct. 2. While the earth is in her nearest semicircle, the planet will be retrograde. 3. While the earth is near those places of its orbit, where a line drawn from the planet would be a tangent, it would appear to be stationary. Thus, in plate VIII. fig. 6, let *a b c d* represent the orbit of the earth; S the sun; E F G an arc of the orbit of Jupiter; A B C an arc of the ecliptic, projected on the sphere of the fixed stars. Suppose Jupiter to continue at F, while the earth goes round in her orbit, according to the order of the letters *a b c d*. While the earth is in the

semicircle most distant from Jupiter, going from *a* to *b* and from *b* to *c*, his motion in the heavens would appear direct, or from A to B, and from B to C; but, while the earth is in its nearest semicircle *c d e*, the motion of Jupiter would appear retrograde from C to B, and from B to A; for *a*, *b*, *c*, *d*, may be considered as so many different stations, from whence an inhabitant of the earth would view Jupiter at different seasons of the year, and a straight line drawn from each of these stations, through F the place of Jupiter, and continued to the ecliptic, would show his apparent place there to be successively at A, B, C, B, A. While the earth is near the points of contact, *a* and *c*, Jupiter would appear stationary, because the visual ray drawn through both planets, does not sensibly differ from the tangent F*a* or F*c*. When the earth is at *b*, a line drawn from *b* through S and F to the ecliptic, shows Jupiter to be in conjunction with the sun at B. When the earth is at *d*, a line drawn from *d* through S, continued to the ecliptic, would terminate in a point opposite to B; which shows Jupiter then to be in opposition to the sun; and thus, it appears, that his motion is direct in the conjunction, but retrograde when in opposition with the sun.

357. The direct motion of a superior planet is swifter the nearer it is to a conjunction, and slower as it approaches to a quadrature with the the sun. Thus, in fig. 9, plate XIII., let ⊙ be the sun; the little circle round it the orbit of the earth, whereof *a b c d e f g* is the most distant semicircle; O P Q, an arc of the orbit of Jupiter; and A B C D E F G, an arc of the ecliptic in the sphere of the fixed stars. If we suppose Jupiter to stand still at P, by the earth's motion from *a* to *g*, he would appear to move direct from A to G, describing the unequal arcs AB, BC, CD, DE, EF, FG, in equal times. When the earth is at *d*, Jupiter is in conjunction with the sun at D, and there his direct motion is swiftest. When the earth is in that part of her orbit where a line drawn from Jupiter would touch it, as in the points *e* or *g*, Jupiter is nearly in quadrature with the sun; and the nearer the earth is to any of these points, the slower is the geocentric motion of Jupiter; for the arcs C D and D E are greater than B C or E F, and the arcs B C and E F are greater than A B or F G.

358. The retrograde motion of a superior planet is swifter the nearer it is to an opposition, and slower as it approaches to a quadrature with the sun. Thus, let ⊙, fig. 10, plate XIII. be the sun, the little circle round it the orbit of the earth, whereof *g h i k l m n* is the nearest semicircle; O P Q, an arc of the orbit of Jupiter, N K G an arc of the ecliptic: if we suppose Jupiter to stand still at P, by the earth's motion from *g* to *n*, he would appear to move retrograde from G to N, describing the unequal arcs G H, H I, I K, K L, L M, M N, in equal times. When the earth is at *k*, Jupiter appears at K, in opposition to the sun, and there his retrograde motion is swiftest. When the earth is either at *g* or *n*, the points of contact of the tangents *P g* and *P n*, Jupiter is nearly in quadrature with the sun; and the nearer he is to either of these points, the slower is his retrogradation; for the arcs I K and K L are greater than H I or L M; and the arcs H I and K M are greater than G H or M N. Since the direct motion is swifter when the earth is at *d*, and continues diminishing till it changes to retrograde, it must be insensible near the time of change; and, in like manner, the retrograde motion being swiftest when the earth is in *k*, and diminishing gradually till it changes to direct, must also at the time of that change be insensible; for any motion gradually decreasing till it changes into a contrary one gradually increasing, must at the time of the change be altogether insensible.

359. The same changes in the apparent motions of this planet will also take place, if we suppose him to go on slowly in his orbit; only they will happen every year when the earth is in different parts of her orbit, and consequently at different times of the year. Thus, fig. 6, plate VIII., let us suppose that while the earth goes round her orbit Jupiter goes from F to G, the points of the earth's orbit from which Jupiter will now appear to be stationary, will be *a* and *y*; and consequently his stations must be at a time of the year different from the former. The conjunction of Jupiter with the sun will now be when the earth is at *f*, and his opposition when it is at *e*; for which reason these also will happen at times of the year different from those of the preceding opposition and conjunction. The motion of Saturn is so slow, that it makes but little alteration either in the times or places of his conjunction or opposition; and no doubt the same will take place in a more eminent degree in Herschel; but the motion of Mars is so much swifter than even that of Jupiter, that both the times and places of his conjunctions and oppositions are thereby very much altered.

360. A superior planet is in apogee when in conjunction with the sun, and in perigee when in opposition; and every one of the superior planets is at its least possible distance from the earth where it is in perigee and perihelion at the same time. Their apparent diameters are variable, according to their distances, like those of the inferior planets; and this, as might naturally be expected, is most remarkable in the planet Mars, who is nearest us. In his nearest approach, this planet is twenty-five times larger than when farthest off, Jupiter twice and a half, and Saturn once and a half. As the times of conjunction, utmost elongation, direct or retrograde motions of the inferior planets, depend on the combinations of their motions in their orbits with the motion of the earth in its orbit, any of these appearances will be more frequent in Mercury than in Venus, because the former moves with a swifter motion in his orbit, and consequently must more frequently pass through those places where he is in conjunction, &c.

361. The time in which any of the inferior planets will return into a given situation, may be easily known. Compute the diurnal heliocentric motions of Venus and of the earth; the difference of these motions is the diurnal motion of Venus from the earth, or the quantity by which Venus would be seen to recede from the earth every day by a spectator placed in the sun: thus

the mean motion of Venus is every day about 59 m. and 8 s.; the difference is 37 m. Therefore, as 37 m. is to 360°, or to 21,600 m. so is one day to the time wherein Venus, having left the earth, recedes from her 360°; that is, to the time wherein she returns to the earth again, or the time between two conjunctions of the same kind.

362. The calculations of the times are here made according to the mean or equable motions of the planets; and is therefore called a mean conjunction: but because Venus and the earth are really carried in elliptic orbits, in which their motions are sometimes swifter and sometimes slower, the true conjunctions may happen some days either sooner or later than what these rules will give. The time of the true conjunction is to be computed from that of the mean conjunction in the following manner. Find by astronomical tables the places of Venus and the earth in the ecliptic, from which we shall have the distance of the two as seen from the sun; compute also for the same time the angular motions of these two planets for any given time, suppose six hours; the difference of these two motions will give the access of Venus to the earth, or her recess from it in six hours. As this difference is to the arc between the places of Venus and the earth at the time of a mean conjunction, so is six hours to the time between the mean conjunction and the true. This time added to, or subtracted from, the time of the mean conjunction, according as Venus is in antecedence or consequence from the earth, shows the time of their true conjunction.

363. As to the conjunctions, oppositions, direct and retrograde motions, &c. of the superior planets, they depend on the combinations of their motions with that of the earth, and are more frequent in Saturn than in Jupiter, and in Jupiter than in Mars, but most frequent of all in Herschel; because the slower the motion of the planet is, the sooner the earth will overtake it, so as to have it again in any given situation.

364. Thus, suppose Saturn to be in conjunction with the sun in ♈, if he were to stand still for one year, then he would again be in conjunction in ♈; but as he goes on slowly, according to the order of the signs, about 12° annually, the earth must go through almost 13° more than an entire revolution; so that there will be almost a year and thirteen days between any conjunction between the sun and Saturn and the conjunction immediately following. As Jupiter moves in his orbit with greater velocity than Saturn, the earth must have a proportionably larger space added to the year; and, as Mars moves swifter still, the time betwixt any two of his conjunctions must be still longer. The time when a superior planet will return into any given situation may be found by the methods already laid down for the inferior planets; and the true conjunctions, &c. may be found in the superior planets as in the inferior.

Sect. II. Of the Velocity, Figure, Motions, &c. of the Earth.

365. The earth is 95,173,000 miles from the sun, and goes round in 365 days, five hours, forty-nine minutes, from any equinox or solstice to the same again; but from any fixed star to the same again, as seen from the sun, in 365 days, six hours, nine minutes; the former being the length of the tropical year, and the latter the length of the sideral. It travels at the rate of 68,000 miles every hour; a motion which, though upwards of 140 times swifter than that of a cannon ball, is little more than half as swift as Mercury's motion in his orbit. The earth's diameter is 7970 miles; and by turning round its axis every twenty-four hours, from west to east, it causes an apparent diurnal motion of all the heavenly bodies from east to west. By this rapid motion of the earth on its axis, the inhabitants about the equator are carried 1042 miles every hour, whilst those on the parallel of London are carried only about 580, besides the 68,000 miles by the annual motion above-mentioned, which is common to all places whatever.

366. A variety of circumstances afford the clearest evidence that the earth is of a globular figure. 1. When we are at sea on board a ship, we may be out of sight of land, when the land is near enough to be visible, if it were not hid from our eye by the convexity of the water. Thus, let A B C D, fig. 11, plate VIII., represent a portion of the globe of the earth. Let M be the top of a mountain, this cannot be seen by a person on board the ship at B, because a line drawn from M to his eye at E, is intercepted by the convexity of the water; but let the ship come to C, then the mountain will be visible, because a line may be drawn from M to his eye at E. 2. The higher the eye the farther the view will be extended. It is very common for sailors from the top of the mast of a ship, to discover land or ships at a much greater distance than they can do when they stand upon deck. 3. When we stand on shore, the highest part of a ship is visible at the greatest distance. If a ship is going from us out to sea, we shall continue to see the mast after the hull or body of the ship disappears, and the top of the mast will continue to be seen the longest. If a ship is coming towards us, the top of the mast comes first in view, and we see more and more till at last the hull appears. If the surface of the sea were a flat plain, a line might be drawn from any object situated upon it, as the ship D, fig. 12, plate VIII. to the eye, whether placed high or low, at A or B. In this case, any object upon the earth or sea would be visible at any distance which was not so great as to make the appearance of it too faint, or the angle under which it appears too small, to be seen by us. An object would be visible at the same distance, whether the eye were high or low. Not the highest, but the largest, objects would be visible to the greatest distance, so that we should be able to see the hulk of a ship farther off than the mast.

367. 4. Several navigators, such as Ferdinand Magellan, Sir Francis Drake, Lord Anson, Captain Cook, &c. have sailed round the globe; not in an exact circle, the land preventing them, but by going in and out as the shores happened to lie. 5. All the appearances in the heavens are the same, whether at land or sea. 6. Eclipses of the moon arise

from the shadow of the earth, which is always circular. Although the earth presents, during several hours, different portions of its surface to the moon, yet still the shadow is round. The small inequalities upon the surface of the earth bear no kind of proportion to its magnitude, sufficient to alter the appearance of its shadow.

368. 7. The globular figure of the earth is also inferred from the operation of levelling, in which it is found necessary, to make an allowance for the difference between the apparent and true level.

369. The earth's axis makes an angle of 23½° with the axis of its orbit, and its position at any time is parallel to its position at any other time. Thus it points always to the same quarter of the heavens, throughout its annual course. That the earth moves round the sun may be proved, beyond a doubt, by the following arguments.

370. I. The sun is found by the most accurate observations, to be immensely larger than the earth; for his diameter, as seen by us, subtends an angle of more than 30′, but it is certain that the earth, were it seen from the sun, would not subtend a greater angle than about 17″. If, therefore, the sun be formed of materials not very much rarer than the earth, the quantity of matter in the sun, must far exceed the whole mass of matter in all the planets; and to suppose, that gravity retains all the other planets in their orbits, without affecting the earth, would be as absurd as to suppose, that six cannon bullets might be projected up to different heights in the air, and that five of them should fall to the ground, but that the sixth, though neither the highest nor the lowest, should remain suspended in the air without falling, and the earth move round it.

371. There is no such thing in nature as a heavy body moving round a light one as its centre of motion. A pebble fastened to a mill-stone by a string, may, by an easy impulse, be made to circulate round the mill-stone: but no impulse can make a mill-stone circulate round a loose pebble; for the mill-stone would go off, and carry the pebble along with it. The sun is so very much bigger and heavier than the earth, that, if he were moved out of his place, not only the earth, but all the other planets, if they were united into one mass, would be carried along with him as the pebble would be with the mill-stone.

372. II. If the earth revolve round the sun, then the analogy between the squares of the periodic times and the cubes of the distances, will obtain in all the bodies which circulate round a common centre; whereas, this will not be the case with respect to the sun and moon, if both turn round the earth.

373. III. Besides these, other proofs might be given; but the most complete proof of all, and which indeed amounts to a demonstration is, the aberration of the fixed stars, arising from the progressive motion of light, combined with the earth's annual motion round the sun: a discovery made by Dr. Bradley, and one of the finest in modern astronomy.

374. By frequent observations of the eclipses of Jupiter's satellites, it is found, that light is about eight minutes in moving from the sun to the earth. And since the earth describes about one degree, or 3600″, in a day, or 1440′, in eight minutes it will describe 20·25″ in its orbit; therefore the velocity of light is to the velocity of the earth in its orbit, as radius to an arch of twenty seconds, or the third part of a minute, that is, as one to $\frac{\cdot 0002909}{3}$ or ·00009697, or as 10300 to one. That is, the velocity of light is 10300 times greater than the velocity of the earth in its orbit. Now if AN, plate VIII. fig. 15, be the way or path of a body in free space, as of a ray of light; its apparent way on a movable plane will be different. For it will be that which is made by the composition of the two motions of the body and plane. Thus, if AN be described in any time by the body, and NF be described by (a point in) the plane, in the same time as the plane moves forward in the direction NF or AB, it leaves all the points of the fixed line AN behind it, all which will therefore seem to move backwards in the plane. Therefore make ND=NF, being taken backwards or contrary to the motion of the plane; and the body, instead of going to N in the free space, will seem to go to D, in the same time, upon the movable plane; and therefore AD will be the apparent path of the body in that plane.

375. It will be the same thing, if we suppose the plane fixed, and the body to have the plane's motion communicated to it, in a contrary direction, so as the relative motion be the same as before. Thus, if the body moves from B to A, in the same time that it would also move from A to N, then by that compound motion it would move along the diagonal BN of the parallelogram whose sides are BA, AN, and in the same time. Therefore rays of light emitted from a star in the direction AN, will fall upon the point D of the moving plane; that is, upon the eye of the observer, in the direction AD: and an observer at D will suppose the star situated in the line DA. If BN be parallel to AD, and the point D translated to N in the same time; an observer at N will suppose the star situated in the line BN; making the angle BNF or ADF less than ANF, the angle it would appear under if the plane were at rest. So that the angle of elevation BNF, above the line of direction NE, of the observer, is less than before, being taken on the side of F, towards which the observer moves. The observer, instead of seeing the star at A, its real place, will see it at B, its apparent place; but if the observer moves from F to N and D, and B be the real place of the star, its apparent place would be at A to an observer at N.

376. The apparent place B is always in the plane of aberration, drawn through the way of the observer NF, and the line NA drawn from the observer to the real place of the star; for AB being parallel to NF, is in the plane ADNF. The angle BNA or NAD is the angle of aberration; by the quantity of this angle the star is depressed, in going towards it; or raised in going from it. In the triangle AND; AN : ND :: S.ADN : S.NAD; and AN and ND being given; the S.NAD the aberration will be as the S.ADN. Because AN is 10,300 times greater than ND: the S.NAD does not differ from its arch or angle; whence, the angle of aberration NAD or ANB is always as the sine of the angle

ADN, or ANF, which are nearly equal, and which may be called the angle of the earth's way. Hence the angle of aberration ANB is greatest, when AN is perpendicular to ND; and becomes nothing when ANF is nothing. Since AN is to ND, as radius to 20″; when AN is perpendicular to ND, the angle NAD or ANB will be 20·25″, which is the greatest it can be. In other cases, as radius to S, angle of the earth's way ANF :: so 20·25″, to the aberration, answering to that angle; which angle is always taken in the plane of aberration ADNF.

377. In Plate VIII. fig. 7, let BCDE be the earth's orbit, S the sun, A or Q a star, N any place of the earth in its orbit. Through the star A draw the circle AH perpendicular to the plane of the ecliptic, and draw KSBH, and ESC perpendicular to it, or parallel to the tangent at B. Draw the tangent N*d*, and draw NI towards the star, and make NI to N*d* as the velocity of light to that of the earth, or as 10,300 to one, and draw *d*I which leads to the apparent place of the star; and suppose DA, SA parallel to *d*I, NI; then DA will also lead to the apparent place of the star. Draw SFG perpendicular to SN, or parallel to N*d*. Then will IN*d* be the plane of aberration. This plane continually changes its situation, revolving round the sun in a year along with the tangent N*d*. Since AS, SF are parallel to IN, N*f*, ASF is equal to IN*f*, and ASF is equal to the angle of the earth's way. Hence the plane ASF may be taken for the plane of aberration, which continually turns round the line AS, as the earth revolves about the sun; the line SF being always in quadrature with the earth at N.

378. Let the earth be at E, then the plane of aberration ASB will be perpendicular to the ecliptic; and the angle of the earth's way A'S B is the least that it can be, and the angle of the aberration the least. Whilst the earth moves to B, the angle of the earth's way, and of aberration increases, and at B the plane of aberration is ACS, and the angle of the earth's way ASC, a right angle, which is the greatest it can be; therefore the angle of aberration is the greatest possible. While the earth moves to C, the angles of the earth's way and aberration decrease again, and at C are the least; and in moving to K they increase again to K, where they are greatest. From K to E they diminish again, where they are least.

379. It is evident then, that whilst the earth is at E moving towards N, the star's apparent place is at *c* lower than A; at B moving towards F, it appears at *b* forward. When the earth is at C, the star appears at *c* above A. And when the earth is at K, the star is seen at *k*, having gone backward. Hence the apparent place of a star describes a small ellipsis in a year, about the true place of the star in its centre, whose transverse axis is parallel to the ecliptic; and lesser axis perpendicular to it. This ellipsis is *b c k e*, answering to places of the earth at B, C, K, E. And the points *k*, *c*, *k*, *e*, answer respectively to the points C, K, E, B, where the plane of aberration cuts the ecliptic, being ninety degrees before the earth, or ninety degrees behind the sun.

380. This phenomenon, the apparent change of place in celestial objects, arising from the combined motions of the earth and the light from those objects, is one of the most curious and important discoveries of modern times. We are indebted for it to Bradley, who, as has been well observed, 'swept the ground of astronomical discovery, and left little to be gathered by those that followed him.'

381. The following formulæ represent the effect of aberration on any fixed stars, both in right ascension and declination, μ representing 20·25″ the quantity found above for the maximum effect of aberration, α and δ the right ascension and declination of the star, ω the obliquity of the ecliptic, and $\odot$ the sun's longitude.

$$\text{Aberration in right ascension} = -\mu.\ \{\sin.\odot \sin.\alpha + \cos.\odot \cos\alpha \cos\omega \sec.\delta.\}$$

$$\text{Aberration in declination} = -\mu.\ \{\sin.\odot \cos.\alpha \,.\, \sin.\delta - \cos.\odot (\sin.\alpha \,.\, \cos.\omega \,.\, \sin.\delta - \sin.\omega \cos.\delta.)\}$$

By the following tables, deduced from these formulæ, the effect of the aberration on the right ascension and declination of any fixed star may readily be computed.

382. TABLE I.

ARGUMENT. For Aber. in R. A. ✱'s R.A. — ⊙'s long. For Aber. in Declin. ✱'s R. A. + 90° — ⊙'s long.				
Signs.				
	O. VI.	I. VII.	II. VIII.	
	− +	− +	− +	
0°	19·17″	16·60″	9·59″	30°
5	19·10	15·71	8·10	25
10	18.88	14·69	6·56	20
15	18·52	13·56	4·96	15
20	18·02	12·32	3·33	10
25	17·38	11·00	1·67	5
30	16·60	9.59	0·00	0
	− +	− +	− +	
	XI. V.	X. IV.	IX. III.	

383. TABLE II.

ARGUMENT. For Aber. in R. A. ✱'s R. A. + ⊙'s long. For Aber. in Declin. ✱'s R. A. + 30° + ⊙'s long.				
Signs.				
	O. VI.	I. VII.	II VIII.	
	+ −	+ −	+ −	
0°	0·83″	0·72″	0·41″	30°
5	0·82	0·67	0·35	25
10	0·82	0·63	0·28	20
15	0·80	0·58	0·22	15
20	0·78	0·53	0·14	10
25	0·75	0·47	0·07	5
30	0·72	0·41	0·00	0
	+ −	+ −	+ −	
	XI. V.	X. IV.	IX. III.	

384. TABLE III.

ARGUMENT. For part 2d of Aber. in Declin. ☉' long. + ✳' Declin. For part 3d of Aber. in Declin. ☉' Long. — ✳' Declin.				
Signs.				
	0. VI.	I. VII.	II. VIII.	
	− +	− +	− +	
0°	3·98″	3·45″	1·99″	30°
5	3·97	3·26	1·68	25
10	3·92	3·05	1·36	20
15	3·85	2·82	1·03	15
20	3·74	2·56	0·69	10
25	3·61	2·28	0·35	5
30	3·45	1·99	0·00	0
	− +	− +	− +	
	XI. V.	X. IV.	IX. III.	

385. *To find from these tables the aberration of a star at right ascension.*—To the logarithms of the sum or difference of the equations from tables I and II, answering to the proper arguments, add the longitude east of the star's declination, and the sum will be the logarithms of the aberration in right ascension.

386. *To find the aberration of a star in declination.*—Find the sum or difference of the equations answering to the former arguments, increased by 90°, to the logarithm of which add the logarithm sine of the star's declination, and the sum will be the logarithm of the first part of the aberration. Take parts second and third from table III, and these applied to the former, will give the aberration in declination. If the declination is south, change the sign of parts 2d and 3d.

387. The strongest objection that can be made against the earth's moving round the sun like the other planets, is, that, in opposite points of the earth's orbit, its axis, which always keeps a parallel direction, would point to different fixed stars; which is not found to be fact. But this objection is easily removed, by considering the immense distance of the stars in respect of the diameter of the earth's orbit; the latter being no more than a point when compared to the former. If we lay a ruler on the side of a table, and along the edge of the ruler view the top of a spire at ten miles distance; then lay the ruler on the opposite side of the table in a parallel situation to what it had before, and the spire will still appear along the edge of the ruler; because our eyes, even when assisted by the best instruments, are incapable of distinguishing so small a change at so great a distance. As the apparent places of the stars, therefore, correspond with this theory, the motion of the earth and the motion of light are both determined.

388. In fact, we find that the sun, and those planets on which there are visible spots, turn round their axes: for the spots in general move regularly over their disks, allowing for the variations already taken notice of. Hence we may reasonably conclude, that the other planets, on which we see no spots, and the earth, which is likewise a planet, have such rotations. But being incapable of leaving the earth to view it at a distance, and its rotation being smooth and uniform, we can neither see it move on its axis, as we do the planets, nor feel ourselves affected by its motion. Yet there is one effect of such motion, which will enable us to judge with certainty whether the earth revolves on its axis or not.

389. All globes which do not turn round their axes, will be perfect spheres, on account of the equality of the weight of bodies on their surfaces; especially of the fluid parts. But all globes, which turn on their axes will be oblate spheroides; that is, their surfaces will be higher or farther from the centre in the equatorial than in the polar regions: for, as the equatorial parts move quickest, they will recede farthest from the axis of motion, and enlarge the equatorial diameter. That our earth is really of this figure, is demonstrable from the unequal vibrations of a pendulum, and the unequal lengths of degrees in different latitudes. Since then, the earth is higher at the equator than at the poles, the sea, which naturally runs downward, or towards the places which are nearest the centre, would run towards the polar regions, and leave the equatorial parts dry, if the centrifugal force of these parts, by which the waters were carried thither, did not keep them from returning. The earth's equatorial diameter is thirty six-miles longer than its axis.

390. One phenomenon, called the precession of the Equinoxes, depending on this peculiarity of form in the figure of the earth, has been noticed from the early ages of astronomy. The pole of the celestial equator appears to move with a slow and nearly uniform motion round the pole of the ecliptic; while the intersections of the equator and ecliptic move backward on the ecliptic, with a motion nearly uniform. This motion is at the rate of about 1° in seventy-two years, or more accurately 50·2″ in a year; consequently the sun returns again to the same equinoctial point before he has completed his revolution in the ecliptic, whence the origin of the term precession of the equinoxes. In consequence of this apparent motion all the fixed stars increase their longitude 50·2″ in a year, and also change their right ascensions and declinations, but their latitudes are not affected. The period of the revolution of the celestial equinoctial pole, round the pole of the ecliptic, is nearly 26,000 years.

391. The north celestial pole therefore, about 13,000 years hence, will be nearly 49° from the present polar star; and about 10000 years hence the bright star α, Syrac, will be within 5° of the north pole. This star therefore, which now in these latitudes passes the meridian within a few degrees of the zenith, will then remain nearly stationary with respect to the horizon. This motion of the celestial pole arises from the attraction of the sun and moon on the excess of matter at the equatorial parts of the earth.

392. The precession of the equinoxes is not entirely uniform, for a small inequality in the precession, and change in the obliquity of the ecliptic, depends on the position of the moon's nodes. The intersections of its orbit with the ecliptic were discovered by Bradley, and have since been confirmed by Physical Astronomy. The precession of the equinoxes was first discovered by Hipparchus. As the quantity of it is so perceptible in a hundred years, a comparison of the positions of the circles of the sphere as recorded in early times, and of their positions now, has been used to assist chronology.

393. Even the inclination of the equator and ecliptic have been shown by observation to be variable, and it is remarkable that from the date of the earliest observations that inclination has been diminishing. If it should continue to do so till the two circles coincided, a most important change would be effected in the phenomenon attending the earth's annual and diurnal revolutions, as the days would everywhere be of the same length, and the seasons would not alter with the times of the year. But we learn from the principles of physical astronomy, that this change in the obliquity will never exceed a certain limit, which when it reaches, it will return again, oscillating by a small quantity on each side of its mean state. We learn from physical astronomy too, that by this action the ecliptic is progressive on the equator, about 14″ in a century. The sun also according to his place in the ecliptic produces a small inequality in the precession, never amounting to more than 1·1″.

394. If $d =$ the declination of a star, and $a =$ its right ascension, then the following formulæ will express nearly the annual variations of a and b, arising from precession: $20{\cdot}084'' \times \cos. a =$ the annual precession in declination, and $46{\cdot}0619 + 20{\cdot}084'' \times \sin. a \times \tan. d =$ the annual precession in right ascension.

395. From these expressions, the following table has been constructed for determining, by inspection, the annual precession for any star.

Rt. Ascension of *		Ann. Precession.	Rt. Ascension of *	
+	−		+	−
0°	180°	·70″	180°	360°
10	190	3·47	170	350
20	200	6·84	160	340
30	210	10·00	150	330
40	220	12·85	140	320
50	230	15·31	130	310
60	240	17·31	120	300
70	250	18·78	110	290
80	260	19·69	100	280
90	270	19·99	90	270

USE OF THE ABOVE TABLES.

396. Take the number opposite the star's right ascension, multiply it by the natural tangent of the star's declination, and add the product to 46·0619 for the annual precession in right ascension. Again add 90° to the star's right ascension, and with the sum as an argument enter the table, and the corresponding number will be the annual precession in declination If the declination is south, the signs of the numbers in the table must be changed, both in finding the precession or right ascension and declination.

397. It is found that bodies near the poles are heavier than those towards the equator, because they are nearer the earth's centre, where the whole force of the earth's attraction is accumulated. They are also heavier, because their centrifugal force is less, on account of their diurnal motion being slower. For both these reasons, bodies carried from the poles towards the equator gradually lose their weight. Experiments prove that a pendulum, which vibrates seconds near the poles, vibrates slower near the equator, which shows that it is lighter or less attracted there. To make it oscillate in the same time, it is found necessary to diminish its length. By comparing the different lengths of peudulums swinging seconds at the equator and at London, it is found that a pendulum must be $2\frac{163}{1000}$ lines (or 12th parts of an inch) shorter at the equator than at the poles.

398. A person on the earth can no more be sensible of its undisturbed motion on its axis, than one in the cabin of a ship on smooth water can be sensible of the ship's motion, when it turns gently and uniformly round. It is therefore no argument against the earth's diurnal motion, that we do not feel it; nor are the apparent revolutions of the celestial bodies every day, a proof of the reality of these motions; for whether we or they revolve, the appearance is the very same. A person looking through the cabin windows of a ship, as strongly fancies the objects on land to go round when the ship turns, as if they actually did so.

399. The other common objections against the earth's motion on its axis, are easily answered. Some imagine, that if the earth turns eastward, as it certainly does if it turns at all, a ball fired perpendicularly upward in the air should fall considerably westward of the place it was projected from. This objection will be found to have no weight, if we consider that the gun and ball partake of the earth's motion; and therefore the ball being carried forward with the air as quick as the earth and air turn, must fall down on the same place. A stone let fall from the top of a main-mast, if it meets with no obstacle, falls on the deck as near the foot of the mast when the ship sails as when it does not.

400. As for those scriptural expressions which seem to contradict the earth's motion, this general answer may be made to them all, that the scriptures were never intended to instruct us in philosophy or astronomy; and therefore, on these subjects, expressions are not always to be taken in the literal sense, but for the most part as accommodated to the common apprehensions of mankind. Men of sense in all ages, when not treating of the sciences purposely, have used common language; and it would be absurd to adopt any other in addressing the majority of mankind.

401. We have said above, that the axis of the earth preserves always the same parallel position;

but this must be understood with a slight limitation. Bradley found that the axis of the earth made a sort of conical revolution round the mean place of the pole, the earth's centre being the apex of the cone, and the diameter of the base about 18″. With that admirable sagacity for which he was not less remarkable than for his accuracy and faithfulness as an observer, he clearly traced this most curious phenomena to its cause, which is the action of the sun and moon, when out of the equator, and the protuberant equatorial parts of the earth. This correction, which is called the Nutation of the earth's axis, goes through all its variations with respect to the moon in about eighteen years, the period of the revolution of the moon's nodes, and with respect to the sun in a year; but the maximum effect of the sun's action nearly amounts to half a second.

402. In strictness, however, the curve of nutation is not a circle but an ellipse, whose axes according to the best observations, are about 18″ and 13·4″. If ☊ denote the longitude of the moon's node, r the right ascension of a star or planet, and d its declination; then the effect of the sun's nutation on the right ascension and declination will be expressed by the following formulæ; viz. the nutation and declination:

$=7{\cdot}85'' \times \sin. \overline{r - ☊} + 1{\cdot}15'' \times \sin \overline{r + ☊}$ and the nutation in right ascension. $= (7{\cdot}85'' \times \sin. \overline{r - ☊ - 90^\circ} + 1{\cdot}15'' \sin. \overline{r + ☊ - 90^\circ}) + \tan d - 15{\cdot}43'' \sin ☊$.

403. From these expressions, the following tables have been computed for finding the effect of the lunar nutation on the right ascension and declination of any celestial object:

404. TABLE I.

ARGUMENT. For Nutation in Right Ascension. $\overline{r - ☊}$ For Nutation in Declination. $\overline{r + 90^\circ - ☊}$				
Signs.				
	O. VI. − +	I. VII. − +	II. VIII. − +	
0°	8·33″	7·21″	4·16″	30°
5	8·30	6·82	3·52	25
10	8·20	6·38	2·85	20
15	8·05	5·89	2·15	15
20	7·83	5·35	1·45	10
25	7·55	4·78	0·73	5
30	7·21	4·16	0·00	0
	− + XI. V.	− + X. IV.	− + IX. III.	

405. TABLE II.

ARGUMENT. For Nutation in Right Ascension. $\overline{r - ☊}$ For Nutation in Declination. $\overline{r + 90^\circ + ☊}$				
Signs.				
	O. VI. − +	I. VII. − +	II. VIII. − +	
0°	1·22″	1·06″	0·61″	30°
5	1·21	1·00	0·52	25
10	1·20	0·93	0·42	20
15	1·18	0·86	0·32	15
20	1·15	0·78	0·21	10
25	1·11	0·70	0·11	5
30	1·06	0·61	0·00	0
	− + XI. V.	− + X. IV.	− + IX. III.	

406. TABLE III.

Equation of Equinoxes in Right Ascension. ARGUMENT. ☊				
Signs.				
	O. VI. − +	I. VII. − +	II. VIII. − +	
0°	0·0″	8·2″	1·2″	30°
5	1·4	9·4	14·8	25
10	2·8	10·5	15·4	20
15	4·2	11·6	15·8	15
20	5·6	12·5	16·1	10
25	6·9	13·4	16·3	5
30	8·2	14·2	16·2	0
	+ 1 XI. V.	+ 1 X. IV.	+ 1 IX. III.	

USE OF THE ABOVE TABLES.

407. To the logarithm of the sum or difference of the equations from tables I. and II., answering to their proper arguments, add the logarithm tangent of the star's declination, and the sum will be the logarithm of part first of the nutation, or right ascension if the declination is north. If it is south, change the sign and apply the equation from table III., and the sum or difference will be the nutation or right ascension. Increase the arguments in tables I. and II. each

by 90°, and the sum or difference of the corresponding difference of the equations taken from those tables, will be the nutation or declination.

408. The annual motion of the earth has been effectually confirmed by an argument drawn from the progressive motion of light; and from the same consideration the truth of the diurnal motion may be completely established.

409. In consequence of the progressive motion of light, the apparent place of a fixed star is east of its true place, and the difference is proportional to the cosine of the star's declination; this displacement of the fixed stars has changed, because of the precession of the equinoctial points. Therefore, if the diurnal revolution of the heavens were a real motion, the whole heavens must have changed their appearance; and the respective positions of the stars must be very different now, from what they were in the time of Hipparchus. A star which is now near the vernal equinox, must have changed its apparent distance, at least 5° from another ecliptical star which is 60° east from it. Nay, it is highly probable that no zodiacal star could be ever visible; such would have been the direction that the rays of light must have taken, because of their own proper motion being compounded with that of the star, whose velocity must have been exceedingly great, by reason of its distance from the poles of the motion. But since no such remarkable displacement of the stars has been observed, we may conclude, that the cause which would have produced it, has no existence; and that the revolutions of the heavens is not a real, but only an apparent motion.

410. The annual and diurnal motions of the earth, together with the different lengths of days and nights, and all the beautiful variety of seasons, depending on those motions, may be thus illustrated.

411. In plate X, fig. 5. let F G H I be the earth, O its centre; and let it revolve about an axis perpendicular to the plane of the figure, in the order I F G H; that is, from west to east. Let A be the sun, draw A F O H C, and G O I perpendicular to it: let a spectator be at I; then since the tangent at I (which represents the horizon) will be parallel to A F H, and A at an immense distance, they will nearly meet in A, and the sun at A will be rising in the horizon at I. As the earth moves round, the spectator is carried towards F, and the sun at A seems to rise higher and higher; and when the spectator is arrived at F, then the sun is at the highest. As the earth still turns round, and the spectator is carried from F towards G, the sun appears to descend, as if it moved towards D; and when the spectator is arrived at G, then the sun appears in the tangent at G; that is, in the horizon at G; and therefore the sun is setting. Afterwards, all the time the spectator is moved through G H I, the sun appears under the horizon, till it comes at I, where the sun seems to rise again.

412. Thus it is evident, that while the spectator is carried through the illuminated half of the earth I F G, it is day light; at the middle point F, it is noon day; at the dark hemisphere G H I, it is night; and at H, it is midnight. And thus the vicissitude of day and night appears, by the rotation of the earth about its axis. What has been said of the sun is equally true of the moon, or any star placed at A. And therefore all the celestial bodies seem to rise and set by turns, one after another, according to their various situations. For let A, B, C, D be four stars; when the spectator is at I, the star A rises; and when at G, it sets. When the spectator is at F, B rises; and when he is at H, it sets. When he is at G, C rises; and when at I, it sets. When the spectator is at H, D rises; and when at F, it sets.

413. Hence it is the very same thing, as to the diurnal motions, whether the earth moves uniformly about its axis, while the heavens stand still; or whether the heavens move uniformly round, while the earth stands still; the phenomena being exactly the same either way. For whether the spectator move uniformly in the arch I F, from west to east, whilst A is fixed; or A moves uniformly in the arch A D, from east to west, whilst I is fixed; the same angle will be described, and therefore the altitude of A, above the horizon, will be the same either way.

Sect. III.—Of the Seasons.

414. To explain the causes of the various seasons in plate VII. fig. 10, let ♈ ♋ ♎ ♑ be the earth's orbit, and S the sun. This orbit is so small with respect to the distance of the fixed stars, that the same aspect of the heavens will appear, whether a man be placed in the earth or in the sun. If the earth be at ♈, a spectator will see the sun in ♎; when the earth comes to ♉, he will see the sun in ♏; and the sun will appear to have moved through ♎ ♏. Whilst the earth is moving to Π, the sun will seem to pass through ♏ ♐; and a person in the earth observes the sun to go through the same space in the heavens, that a spectator at the sun would see the earth go through; and as he is not sensible of the earth's motion, he ascribes that motion to the sun, which in reality is unmoved. Hence, because the relative motion is the same, whether of the two is moved, and all effects are the same as to their places; astronomers generally suppose the sun to move along the ecliptic, describing its orbit round the earth at rest.

415. Let N E A Q be the earth, N A be its axis, N the north pole, A the south; E Q the equinoctial, and P R a parallel of latitude passing through any place. Draw a plane G ♈ I perpendicular to ♑ S ♋, which divides the illuminated hemisphere from the dark one. The axis N A is inclined to the plane of the ecliptic or earth's orbit, in an angle of 66½°: and during the earth's motion in its orbit, the axis always remains in a parallel position, or pointing to the same star. The earth also moves uniformly round this axis; and describes equal arches in equal times. Now let the earth be at ♎; in this position, the circle dividing the light and dark hemispheres passes through the poles N and A, and divides all the parallels as P R into two equal parts; therefore any point in that parallel, as the earth revolves round, will stay as long in the light hemisphere as in the dark; that is, the days and nights are equal. As it moves to ♏, the pole N comes into the light hemisphere, by reason of the oblique position of the axis N A; and as it proceeds to ♐ and ♑, the light hemis-

phere reaches farther and farther beyond N, till coming to ♑, it is at the farthest, reaching to G, and making the arch N G 23½° the complement of N ♑ S, or 66½°. Then the opposite pole A is as far involved in the dark hemisphere; whence in north latitudes, or in the hemisphere E N Q, the days have been increasing from ♎ to ♑, where they are at their longest; for the greater part of the parallel P R is in the illuminated hemisphere, and the smaller part in the dark.

416. In the opposite or southern hemisphere the days have been decreasing, and are at their shortest when the earth is at ♑: for all parallels to E Q have their greater part in the dark hemisphere. If through the point G a parallel be described, this parallel is called the arctic circle; and all the space contained therein is illuminated, and there is no night, when the earth is at ♑. For the same reason, the space within a parallel drawn through I, will be all dark, and all is night there. If a parallel be drawn through B, where S ♑ cuts the arch N E, that parallel is called the tropic of Cancer; and then the sun will shine perpendicular upon the inhabitants in that parallel. This is the summer season for those that are in the hemisphere E N Q, and the winter for those that live in E A Q; and since E Q is equally divided by the circle of light and darkness G I, the days and nights are always equal under the equinoctial.

417. While the earth moves through ♒ and ♓ to ♈, the circle of light and darkness comes nearer and nearer to the pole N, the angle N ♑ G, and consequently B ♑ E grows less and less, till they vanish in ♈; then the circle of light and darkness passes again through the poles N and A, bisecting all the parallels as P R; and the days and nights are again equal all over the earth.

418. While the earth moves through ♈, ♉, ♊, to ♋, the sun seems to go through ♎, ♏, ♐, to ♑; and the circle separating light and darkness, falls short more and more of the north pole N, and goes further and further beyond the south pole A; whence the parallels cut by that circle will have the greater part in the dark in the north hemisphere; but in the south hemisphere, the greater part will be in the light: and it is winter to the northern hemisphere E N Q, the days being at the shortest; and summer to the southern hemisphere E A Q, their days being at the longest. Within the parallel drawn through G, there will be no day whilst the earth is at ♋; and in the parallel drawn through I, there will be no night. At the pole A it will be day for six months, and at the pole N it will be night for six months; just the contrary of what happens when the earth is at ♑. In this position, if a parallel be drawn through B, the sun will shine perpendicular to the earth in that parallel, and it is called the tropic of Capricorn; and a parallel drawn through I is called the antarctic circle.

419. When the earth moves from ♋ through ♌ and ♍ to ♎ again; it is evident the circle separating light and darkness draws nearer and nearer to the poles N and A, by which the light and dark parts of the parallels become nearer an equality, and so to the days and nights. Therefore in the north hemisphere E N Q, the days are increasing; and in the south hemisphere they are decreasing: and the days and nights become equal in every place, when the earth arrives at ♎.

420. In this manner are the several seasons caused, being owing to the obliquity of the axis of rotation of the earth, to the plane of the earth's orbit. But if the axis was perpendicular to it, there could be no variety in the length of days in whatever part of the orbit the earth was; and all seasons would be alike. Thus the obliquity of the earth's axis to the ecliptic, or which is the same thing, of the equinoctial to the ecliptic; is the cause of the different seasons, summer, winter, spring, and autumn, during the year. Without this, there could be no difference of seasons; and consequently it could not be easy to know the length of the year, without observations of the stars. For the length of the year is known from finding the time by observation, when the sun is in the equinoctial points; and there being no such points to observe by, there could be no method but to observe by the position of the stars, when the same star was again in opposition to the sun, which none but an astronomer could do.

421. The sun appears 47° higher in the summer tropic than it does in the winter tropic; for in summer it seems to have ascended through the arch B E; and in winter to have descended through the arch B Q equal to B E; and their sum is 47°.

422. All these phenomena may be thus represented: Take a small globe that has the equinoctial and parallels drawn on it; and, placing a candle upon a table, move the globe round the candle in a circle parallel to the table, so that the axis of the equator may be oblique to that circle, and be kept always in a parallel position whilst it moves about The candle will illuminate the globe as it is carried round, just as the sun does the earth in its orbit; and the poles and the parallels will be the same way affected with light and darkness as the globe.

423. The orbit of the earth being elliptical, and the sun constantly keeping in its lower focus, which is 1,617,941 miles from the middle point of the longer axis, the earth approaches twice as near, or 3,235,882 miles nearer the sun at one time of the year than at another; for the sun appearing under a larger angle in our winter than summer, proves that the earth is nearer the sun in winter. But here this question naturally arises, Why have we not the hottest weather when the earth is nearest the sun? In answer it must be observed, that the eccentricity of the earth's orbit, or 1,617,941 miles, bears no greater proportion to the earth's mean distance from the sun, than seventeen does to 1000; and therefore this small difference of distance cannot occasion any great difference of heat or cold.

424. But the principal cause of this difference is, that in winter the sun's rays fall so obliquely upon us, that any given number of them is spread over a much greater portion of the earth's surface where we live; and each point must then have fewer rays than in summer. There comes also a greater degree of cold in the long winter nights than there can return of heat in so short days; and on both these accounts the cold must increase. In summer the rays fall more perpendicularly upon us; come with greater force, and

in greater numbers, on the same place; and by their long continuance, a much greater degree of heat is imparted by day than can fly off by night.

425. Besides, those parts which are once heated, retain the heat for some time; which, with the additional heat daily imparted, makes it continue to increase though the sun declines towards the south. This is the reason why July is hotter than June; and often, in our cold climate, August hotter than both, although the sun has withdrawn from the summer tropic; as we find it is generally hotter at three in the afternoon, when the sun has gone towards the west, than at noon when he is in the meridian. Those places too which have been well cooled require time to be heated again; for the sun's rays do not heat even the surface of any body, till they have been some time upon it. Hence we find January for the most part colder than December, although the sun has withdrawn from the winter tropic, and begins to dart his beams more perpendicularly upon us. An iron bar is not heated immediately upon being put into the fire, nor grows cold till some time after it has been taken out.

426. If we suppose the degree of heat to be as mth power of the sun's altitude, into the nth power of the time of his continuance above the horizon, that s and c are the sine and cosine of any given latitude; s' and c' the sine and cosine of the sun's declination at the semidiurnal one; T the time in the afternoon, when the heat is the greatest; and x and y the sine and cosine of T. Then $cc' + ss'y$ will be the sine of the sun's altitude; and consequently $(cc' + ss'y)^m \times \overline{A + T}^n$ must be a maximum; whence its fluxion $m\,ss'\dot{y} \times \overline{A + T} + n\dot{T} + (ss' + ss'y) = 0$. But by the property of the circle $\frac{\dot{y}}{x} = \dot{T}$, and consequently $\overline{A + T} - x - \frac{ny}{m} = \frac{ncc'}{mss'}$; an equation from whence the relation between x and y may be determined.

427. The sun completes what is called a tropical year, when he arrives at the same equinoctial or solstitial point. This he does in 365d. 5h. 48′ 57″. When he arrives at the same fixed star again, as seen from the earth, he completes the siderial year, which contains 365d. 6h. 9′. 14½″. The siderial year is therefore 20′ 17½″ longer than the solar or tropical year, and 9′ 14½″ longer than the Julian or the civil year, which we state at 365d. 6h.; so that the civil year is almost a mean between tbe siderial and tropical.

428. As the sun describes the whole ecliptic, or 360°, in a tropical year, he moves 59′ 8″ of a degree every day at a mean rate; and consequently 50″ of a degree in 20′ 17½″ of time; therefore he will arrive at the same equinox or solstice, when he is 50″ of a degree short of the same star, or fixed point in the heavens, from which he set out the year before. So that, with respect to the fixed stars, the sun and equinoctial points fall back, as it were, 30° in 2160 years, which will make the stars appear to have gone 30° forward with respect to the signs of the ecliptic in that time: for the same signs always keep in the same points of the ecliptic without regard to the constellations.

429. The sun returns to the equinox again in 365d. 5h. 48′ and 57″; and this is the period in which the seasons complete their revolution. But as it is convenient in civil life to make the year consist of an exact number of days, three years in succession are made to consist of 365 days, and a fourth of 366 days; making the average length of a civil year to be 365d. 6h. or 11 3″ too little.

430. These 11′ 3″, by which the civil or Julian year exceeds the solar, amount to 11 days in 1433 years; and so much our seasons had fallen back, with respect to the days of the months, since the time of the Nicene council in A. D. 325. In order, therefore, to bring back all the fasts and festivals to the days then settled, it was requisite to suppress 11 nominal days; and, that the same seasons might be kept to the same times of the year in future, to leave out the bissextile day in February, at the end of every century of years not divisible by 4; to reckon them only common years; as the 17th, 18th, and 19th centuries, viz. the years 1700, 1800, 1900, &c. because a day intercalated every fourth year was too much; and to retain the bissextile day at the end of those centuries of years which are divisible by 4, as the 16th, 20th, and 24th centuries, viz. the years 1600, 2000, 2400, &c.

431. Without these changes, the seasons in length of time would be quite reversed with regard to the months of the year; though it would have required near 23,783 years, to have brought about such a total change. If the earth had made exactly 365¼ diurnal rotations on its axis, while it revolved from any equinoctial or solstitial point to the same again, the civil and solar years would always have kept pace together and the style would never have needed any alteration.

Sect. IV. Of the Phenomena of the Moon.

432. The moon is not a primary planet, but only a satellite, or attendant of the earth, circulating around it in 29d. 12h. and 44′, and round the sun along with it every year. The moon's diameter is 2180 miles; and her distance from the earth's centre about 240,000 miles. She goes round her orbit in 27d. 7h. 43′. moving about 2290 miles every hour; and turns round her axis exactly in the same time that she goes round the earth, which is the reason of her keeping always the same side towards us, and that her day and night taken together is as long as our lunar month.

433. The moon is an opaque globe like the earth, and shines only by reflecting the light of the sun; therefore, whilst that half of her which is towards the sun is enlightened, the other half must be dark and invisible. Hence she disappears when she comes between us and the sun; because her dark side is then towards us. When she is gone a little way forward, we see a little of her enlightened side; which increases to our view as she advances, until she comes to be opposite to the sun; when her whole enlightened side is towards the earth, and she appears a round illuminated orb, which we call the full

moon; her dark side being then turned away from the earth. From the full she seems to decrease gradually as she goes through the other half of her course; showing us less and less of her enlightened side every day, till her next change or conjunction with the sun, when she disappears as before.

434. The moon has scarcely any difference of seasons; her axis being almost perpendicular to the ecliptic. What is very singular, one half of her has no darkness at all; the earth constantly affording it a strong light in the sun's absence; while the other half has a fortnight's darkness and a fortnight's light by turns.

435. Our earth appears as a moon to the inhabitants of the moon; waxing and waning regularly, but appearing thirteen times as big, and affording them thirteen times as much light as she does to us. When she changes to us, the earth appears full to her; and when she is in her first quarter to us, the earth is in its third quarter to her; and vice versa. But from one half of the moon the earth is never seen at all: from the middle of the other half it is always seen over head; turning round almost thirty times as quick as the moon does. From the circle which limits our view of the moon, only one half of the earth's side next her is seen; the other half being hid below the horizon of all places on that circle. To her inhabitants the earth appears the largest body in the universe; for it appears thirteen times as large as she does to us.

436. While the earth turns round its axis, the several continents, seas and islands, appear to the moon's inhabitants like so many spots of different forms and brightness, moving over its surface; but much fainter at some times than others, according as our clouds cover them. By these spots the Lunarians can determine the time of the earth's diurnal motion, just as we do the motion of the sun: and they may measure their time by the motion of the earth's spots, for they cannot have a more true dial.

437. The axis of the moon is so nearly perpendicular to the ecliptic, that the sun never removes sensibly from her equator; and the obliquity of her orbit, which is next to nothing as seen from the sun, cannot cause the sun to decline sensibly from her equator. Yet her inhabitants are not destitute of means for ascertaining the length of their year, though their method must differ from ours. We know the length of our year by the return of our equinoxes; but the Lunarians, having always equal day and night, must have recourse to another method; and, we may suppose, they measure their year by observing when either of the poles of our earth begins to be enlightened, and the other to disappear, which is always at our equinoxes; they being conveniently situated for observing great tracts of land about our earth's poles, which are entirely unknown to us. Hence we may conclude, that the year is of the same absolute length to the inhabitants of the earth and moon, though very different as to the number of days; we having $365\frac{1}{4}$ natural days, and the Lunarians only $12\frac{7}{19}$, every day and night in the moon being as long as $29\frac{1}{2}$ on the earth.

438. The inhabitants of the moon, on the side next the earth, may find the longitude of their places as easily as we can find the latitude of ours. For the earth keeping constantly, or very nearly so, over one meridian of the moon, the east or west distances of places from that meridian are as easily found as we can find our distance from the equator by the altitude of our celestial poles.

439. As the sun only enlightens that half of the earth which is towards him, and leaves the opposite half in darkness, he does the same to the moon; but with this difference, that as the earth is surrounded by an atmosphere, we have twilight after the sun sets; but if the moon has neither an atmosphere of her own, nor is included in that of the earth (as is supposed), the Lunarians must have an immediate transition from the brightest sunshine to the blackest darkness.

440. The moon being an opaque spherical body (for her hills take off no more from her roundness than the inequalities on the surface of an orange take of from its roundness,) we can only see that part of the enlightened half which is towards the earth. And therefore, when the moon is at A, see plate IV. fig. 3, in conjunction with the sun S, her dark half is towards the earth, and she disappears, as at *a*, there being no light on that half to render it visible. When she comes to her first octant at B, or has gone an eighth part of her orbit from her conjunction, a quarter of her enlightened side is towards the earth, and she appears horned, as at *b*. When she has gone a quarter of her orbit from between the earth and sun to C, she shows us one-half of her enlightened side, as at *c*, and we say she is a quarter old. At D she is in her second octant; and by showing us more of her enlightened side, she appears gibbous, as at *d*. At E her whole enlightened side is towards the earth; and therefore she appears round, as at *e*, when we say it is full moon. In her third octant at F, part of her dark side being towards the earth, she again appears gibbous, and is on the decrease, as at *f*. At G we see just one-half of her enlightened side; and she appears half decreased, or in her third quarter, as at *g*. At H we only see a quarter of her enlightened side, being in her fourth octant, where she appears horned, as at *h*. And at A, having completed her course from the sun to the sun again, she disappears, and we say it is new moon. Thus, in going from A to E, the moon seems continually to increase; and in going from E to A, to decrease in the same proportion; having like phases at equal distances from A to E, but as seen from the sun S, she is always full.

441. The moon does not appear perfectly round when she is full in the highest or lowest part of her orbit, because we have not a full view of her enlightened side at that time. When full, in the highest part of her orbit a small deficiency appears on her lower edge; and the contrary when full in the lowest part of her orbit.

442. From the figure it is evident, that when the moon changes to the earth, the earth appears full to the moon; and vice versa. For when the

moon is at A, new to the earth, the whole enlightened side of the earth is towards the moon; and when the moon is at E, full to the earth, its dark side is towards her. Hence a new moon answers to a full earth, and a full moon to a new earth. The quarters are also reversed to each other.

443. The position of the moon's cusps, or a right line touching the points of her horns, is very differently inclined to the horizon at different hours of the same days of her age. Sometimes she stands, as it were, upright on her lower horn, and then such a line is perpendicular to the horizon: when this happens, she is in what the astronomers call the nonagesimal degree, which is the highest point of the ecliptic above the horizon at that time, and is 90° from both sides of the horizon, where it is then cut by the ecliptic. But this never happens when the moon is on the meridian, except when she is at the very beginning of Cancer or Capricorn.

444. It is easy to demonstrate that the moon turns round her axis in the time that she goes round her orbit; for a spectator at rest, without the periphery of the moon's orbit, would see all her sides turned regularly towards him in that time. She turns round her axis from any star to the same star again, in 27d. 7h.; from the sun to the sun again in 29½ d.; the former is the length of her siderial day, and the latter the length of her solar day. A body moving round the sun would have a solar day in every revolution, without turning on its axis; the same as if it had been at rest, and the sun moved round it; but without turning round its axis it could never have one siderial day, because it would always keep the same side towards any particular star.

445. If the earth had no annual motion, the moon would go round it so as to complete a lunation, a siderial, and a solar day, all in the same time. But because the earth goes forward in its orbit, while the moon goes round the earth in her orbit, the moon must go as much more than round her orbit, from change to change, in completing a solar day, as the earth has gone forward in its orbit during that time, i. e. almost a twelfth part of a circle. If the earth had no annual motion, the moon's motion round the earth, and her track in open space, would always be the same. But, as the earth and moon move round the sun, the moon's real path in the heavens is very different from her visible path round the earth; the latter being in a progressive circle, and the former in a curve of different degrees of concavity; which would always be the same in the same parts of the heavens, if the moon performed a complete number of lunations in a year without any fraction.

446. Newton ascribed the equality between the periods of rotation and revolution of the moon to her being of an oval form, and being denser on one side than the other; but La Grange has shown that though, from the diminution of the centrifugal force, the moon ought to be elevated at the equator, yet the aberration is four times as great in the direction of the equatorial diameter, which is directed towards the earth; and he has proved that, in consequence of the attraction of the earth on this elevated portion, the moon's motion is alternately accelerated and retarded; and that this attraction tends to produce an equality between the rotation and revolution of the moon, and to occasion a coincidence both in the position and motion of the nodes of the moon's orbit.

447. The motion of the moon in her orbit not being equable, if her rotation on her axis be uniform there must be parts on her eastern and western edges which are only occasionally seen. These changes, called her libration in longitude, are found to agree with an equable motion of rotation. There are parts also about her poles only occasionally visible. This, called her libration in latitude, arises from her axis being constantly inclined to the plane of her orbit, in an angle of about 86°. A diurnal libration also takes place; at rising a part of the western edge is seen, which is invisible at setting, and the contrary takes place with respect to the eastern edge. This is occasioned by the change of place in the spectator, occasioned by the earth's rotation. Having found by any means the moon's angular distance from the sun, the appearance of her disk for that time may be easily delineated in the following manner: Let the arch C O B P, Plate IV. figs. 6 and 8, represent the disk of the moon which is turned towards the earth, and let O P be cut by the diameter B C at right angles, take L P to L F as radius to cosine of the moon's angular distance from the sun, and upon B C as the greater and L F the less axis describe the semi-ellipse B F C; then B F C P will represent that portion of the moon's illumined face which is visible from the earth.

448. To illustrate this, let the nail in the end of the axle of a chariot-wheel represent the earth, and a pin in the nave the moon: if the body of the chariot be propped up so as to keep that wheel from touching the ground, and the wheel be then turned round by hand, the pin will describe a circle both round the nail and in the space it moves through. But if the props be taken away, the horses put to, and the chariot driven over a piece of ground which is circularly convex, the nail in the axle will describe a circular curve, and the pin in the nave will still describe a circle round the progressive nail in the axle, but not in the space through which it moves. In this case, the curve described by the nail will resemble in miniature as much of the earth's annual part round the sun, as it describes whilst the moon goes as often round the earth as the pin does round the nail; and the curve described by the pin will have some resemblance to the moon's path during so many lunations.

449. The surface of the moon being uneven, some are surprised that her edge does not appear jagged, as well as the curve bounding the light and dark places. But if we consider that what we call the edge of the moon's disk is not a single line set round with mountains, in which case it would appear irregularly indented, but a large zone, having many mountains, lying behind one another from the observer's eye, we shall find that the mountains in some rows will be opposite to the vales in others; and thus fill up the inequalities so as to make her appear quite round; just as when one looks at an orange,

although its roughness be very discernible on the side next the eye, especially if the sun or a candle shines obliquely upon that side, yet the line terminating the visible part still appears smooth and even.

Sect. V. Of the Tides.

450. The tides are found to follow periodically the course of the sun and moon, and hence it has been suspected, in all ages, that the tides were somehow produced by the influence of these luminaries. Of this, Pliny, Ptolemy, Macrobius, and others, seem to have had some knowledge. The celebrated Kepler formed some conjectures long ago, as to the true cause of the tides. 'If,' says he, 'the earth ceased to attract its waters towards itself, all the water in the ocean would rise and flow into the moon. The sphere of the moon's attraction extends to our earth and draws up the water.' What Kepler only surmised, has been completely verified in the theory laid down by Newton, and by Halley from his principles. The principal phenomena of the tides are as follows:

451. I. The sea is observed to flow for about six hours from south to north, gradually swelling; and after a flux of about six hours, it seems to rest for a quarter of an hour; and then to ebb or retire back again from north to south for six hours more. Then, after a seeming pause of about ¼ of an hour, the sea again begins to flow; and so on alternately.

452. II. Hence the sea ebbs and flows twice a-day, but falling every day later and later by about forty-eight minutes, the period of a flux and reflux being on an average about 12 h. 24 m. and the double of each 24 h. 48 m. which is the period of a lunar day, or the time between the moon's passing a meridian and coming to it again. So that the sea flows as often as the moon passes the meridian, both the arch above the horizon, and that below it; and ebbs as often as she passes the horizon, both on the eastern and western side. These are the most obvious appearances; the other phenomena are as follows:

453. III. The elevation towards the moon exceeds the opposite one a little, and the quantity of the ascent of the water is diminished from the equator to the poles.

454. IV. The sun raises and depresses the sea twice every day, in the same manner that the moon does; but the solar tides are much less than the lunar ones, although subject to the same laws.

455. V. The tides which depend upon the actions of the sun and moon are not distinguished but compound; and thus they form to appearance one united tide which, increasing and decreasing, produce neap and spring tides.

456. VI. In the syzygies the elevations from the actions of both luminaries concur, and the sea is more elevated; but the sea ascends less in the quadratures; for where the water is elevated by the action of the moon, it is depressed by that of the sun, and vice versa. Therefore, while the moon passes from the syzygy to the quadrature, the daily elevations are continually diminished; on the contrary, they are increased while the moon passes from the quadrature to the syzygy. At the new moon also cæteris paribus the elevations are greater; and those that follow one another the same day, are more different than those at full moon.'

457. VII. The greatest elevations and depressions take place on the 2d or 3d day after the new or full moon; and they are the greater, the nearer the luminaries are to the plane of the equator; being greatest in the syzygies, near the equinoxes.

458. VIII. The actions of the sun and moon are greater the nearer those bodies are to the earth; and the greatest tides happen when the sun is a little to the south of the equator: but this does not happen regularly every year, because some variation may arise from the situation of the moon's orbit, and the distance of the syzygy from the equinox.

459. IX. The mean force of the moon to move the sea, is to that of the sun nearly as 4½ to 1; and therefore if the action of the sun alone produce a tide of two feet, which it is said to do, then that of the moon will be nine feet; from which it follows, that the spring-tides will be eleven feet, and the neap-tides seven feet. But such elevations as far exceed these, happen from the motion of the water against some obstacles, and from the sea violently entering straits or gulfs, where the force is not broken till the water rises higher.

460. The preceding phenomena take place in the open sea, where the ocean is extended enough to be subject to their motions. But the particular situations of places, as to shores, capes, bays, &c. disturb in a considerable degree these general rules. We are now to show how these phenomena may be explained, from the principle of universal gravitation.

461. If the earth were entirely fluid and quiescent, its particles, by their mutual gravity towards each other, would form the whole mass into the figure of an exact sphere. If a power were to act on all the particles of this sphere, with an equal force, and in parallel directions, the whole mass would be moved together; but no change would be produced on its spherical figure, and its centre would have the same motion as each particle.

462. Upon this hypothesis, if the motion of the earth round the centre of gravity of the earth and moon, were destroyed, and the earth left to the influence of its gravitation towards the moon, as the power above mentioned, then the earth would fall or move straight towards the moon, without changing its spherical figure.

463. But the fact is, that the effects of the moon's action, as well as the action itself on different parts of the earth, are not equal; those parts, by the general rules of gravity, being most attracted that are nearest to the moon, and those being least attracted that are farthest from her; while the parts that are at a middle distance are attracted by a mean degree of force. Besides, all the parts are not acted upon in parallel lines, but in lines directed towards the centre of the moon, on both which accounts the spherical figure of the fluid earth must suffer some change from the action of the moon; so that in failing, as we have

supposed, the nearer parts being most attracted, would fall quickest, the farther parts being least attracted, would fall slowest, and the fluid mass would be lengthened out, and take a kind of spheroidical form.

464. Hence it appears (which must be carefully observed), that it is not the action of the moon itself, but the inequalities in that action, that cause any variation from the spherical figure; and that if this action were the same in all the particles, as in the central parts, and operating in the same direction, no such change would ensue.

465. Let us now admit the parts of the earth to gravitate towards its centre, then as this gravitation far exceeds the action of the moon, and much more exceeds the differences of her actions on different parts of the earth, the effect which results from the inequalities of these actions of the moon, will be only a small diminution of the gravity of those parts of the earth, which it endeavoured in the former supposition to separate from its centre; that is, those parts of the earth which are nearest to the moon, and those that are farthest from her, will have their gravity towards the earth somewhat abated, to say nothing of the lateral parts; so that supposing the earth fluid, the columns from the centre to the nearest, and to the farthest parts must rise, till, by their greater height, they are able to balance the other columns, whose gravity is less altered by the inequalities of the moon's action, and thus the figure of the earth must be an oblong spheroid.

466. Let us now consider the earth, instead of falling towards the moon by its gravity, as projected in any direction, so as to move round the centre of gravity of the earth and moon, it is evident, that in this case the several parts of the fluid earth will still preserve that relative position, and the figure of the earth will remain the same as if it fell freely towards the moon; that is, the earth will still assume a spheroidal form, having its longest axis directed toward the moon.

467. From the preceding reasoning, it appears, that the parts of the earth directly under the moon, as at H, plate X. fig. 4, and also the opposite parts at D, will have the flood or high-water at the same time, whilst the parts at B and F, at 90° distance, or where the moon appears in the horizon, will then have the ebbs, or lowest waters.

Hence as the earth turns round its axis from the moon to the moon again in 24h. 48m. this oval of water must shift with it, and thus there will be two tides of flood, and two of ebb in that time. It farther appears, that by the motion of the earth on her axis, the most elevated part of the water is carried beyond the moon, in the direction of the rotation; so that the water continues to rise after it has passed directly under the moon, though the immediate action of the moon there begins to decrease; and comes not to its greatest elevation, till it has got about half a quadrant farther. It continues to descend after it has passed at 90° from the point below the moon, to a like distance of half a quadrant.

468. The greatest elevation, therefore, is not in the line drawn through the centres of the earth and moon, nor the lowest points, where the moon appears in the horizon, but all these are removed about half a quadrant eastward from these points in the direction of the motion of rotation. Thus, in open seas, where the water flows freely, the moon, M, is generally past the north and south meridian, as at *p*, when the high water is at Z, and at *n*; the reason of which is plain, because the moon acts with the same force after she has passed the meridian, and thus adds to the libratory or waving motion which the water acquired when she was in the meridian.

469. Besides, the tides answer not always to the distance of the moon from the meridian, at the same places, for the action of the sun brings them on sooner when the moon is in her first and third quarters, and keeps them back later when she is in her second and fourth: because, in the former case, the tide, raised by the sun alone, would be earlier than that raised by the moon, and in the latter case, later.

470. We have hitherto adverted only to the action of the moon in producing the tides; but it is evident, that for the same reasons, the inequality of the sun's action on different parts of the earth, would produce a like effect, and a like deviation from an exact spherical figure; so that in reality, there are two tides, every natural day, from the action of the sun, as there are in a lunar day, from the action of the moon, subject to the same laws; and the lunar tide, as has been observed, is somewhat changed by the action of the sun, the change varying every day, on account of the inequality between the natural and lunar day.

471. Although the gravitation of the earth, towards the sun, is much greater than its gravitation towards the moon, yet, by reason of the sun's immense distance, to which the earth's diameter bears a small proportion, his action upon the side of the earth next to him differs but little from that which is exerted on the side farthest from him, and it is only the inequalities in that action that produce the tide. However, the effect of the sun is still very sensible, but that of the moon is much more so; for, by its proximity to the earth, there is a considerable inequality, both in the direction of its action, and in the intensity of that action upon different parts of the earth.

472. Hence it is easy to see, that the tides must be greatest at new and at full moon, because the actions of the sun and moon are then exerted in the same directions. These are called spring tides; whereas, when the sun and moon are 90° distant, the action of the one luminary raises the tides, just where that of the other depresses them, and thus are produced what are called neap tides. Newton has calculated the effects of the sun and moon respectively upon the tides from their attractive powers, the former he finds to be to the force of gravity, as one to 12,868,200. To find the force of the latter upon the water, he compares the spring tides at the mouth of the river Avon, below Bristol, with the neap tides, and finds the proportion as nine to five; whence, after several necessary corrections, he concludes, that the force of the moon, in moving the waters, is to that of the sun, as 4·4815 to one.

473. Dr. Horsley, however, in his edition of

Newton's Principia, estimates the force of the moon to that of the sun, as 5·0469 to one, and other authors have given different proportions; but Newton computes, from his proportion, that the moon may raise the waters nine feet, 1½ inch, and the sun and moon together may produce an elevation of about eleven feet, two inches; and about 12¾ feet, when the moon is at her nearest distance. Now this is found by observation, to be nearly the height to which the water rises, on the coasts of the open and deep ocean.

474. It must be observed, that the spring tides do not happen precisely at new and full moon, nor the neap tides precisely at the quarters, but a day or two after; because, as in other cases, so in this, the effect is not greatest or least when the immediate influence of the cause is greatest or least; for if the actions of the sun and moon were to cease, yet the tides would continue for some time; as the waves of the sea continue their motion after a storm.

475. The different distances of the moon from the earth produce a sensible variation in the tides; and Newton has shown, that they increase as the cubes of the distances decrease; so that the moon at half her distance, would produce a tide eight times greater. The moon describes an oval round the earth; and at her nearest distance, produces a tide sensibly greater than at her farthest distance. Hence two great spring tides never succeed each other, at the distance of fourteen days; for if the moon be at her least distance at the change, and therefore produce a great spring tide, she will be at her greatest distance at the full, and therefore the spring tide will be less.

476. The spring tides are highest, and the neap tides lowest, about the time of the equinoxes; because, were the sun or moon in the pole of the world, there would be no tide; for their action would raise the water at the equator or any parallel, equally round the earth: therefore, the nearer they are to the equator, the greater must be the effect. When the sun and moon traverse the equator, the tides, which are under them, will traverse the greatest circle, and the waters will be put into the greatest agitation. They will also be the greater at these times, because the earth is nearer to the sun, about the beginning of March and end of September, than in the summer months.

477. As the greatest of the two tides, happening in every diurnal revolution of the moon, is that in which the moon is nearest the zenith or nadir, therefore, while the sun is in the northern signs, the greater of the two diurnal tides, in our climate, will be that arising from the moon when above the horizon; and when the sun is in the southern signs, the greatest is that arising from the moon below the horizon. Thus, the evening tides in summer exceed the morning tides, and the morning tides in winter exceed the evening tides. This difference is found at Bristol to be fifteen inches, and at Plymouth twelve inches.

478. Such would the tides regularly be, if the earth were all covered over with the sea, to a great depth, so that the waters might freely follow the influence of the sun and moon; but, as the tides pass over shoals, and run through straits into bays of the sea, their motion becomes more various, and their height depends upon a great many circumstances. That the tides may have their full motion, the ocean, in which they are produced, ought to be at least 90° extended from east to west; because that is the distance between the greatest elevation, and the greatest depression, produced in the waters by the moon.

479. Hence it appears, that it is only in the great oceans that such tides as we have described can be produced, and why in the larger Pacific Ocean they exceed those in the Atlantic Ocean. Hence it is obvious why the tides are not so great in the torrid zone, between Africa and America, where the ocean is narrower, as in the temperate zones on either side; and hence, also, we see why the tides are so small in islands, at great distances from the shores. It likewise appears, that the waters cannot rise on one shore of the Atlantic Ocean, but by descending on the other, so that at the intermediate islands it must remain at a mean height, between its elevations on those two shores.

480. The tides that enter the mouths of rivers from the ocean, are greatly retarded in their progress, by the currents of the rivers. Mr. Condamine, while in South America, observed, that in the river Amazons, there were five high waters, and four intermediate low waters at once; and a similar circumstance takes place in the Thames. For the tide propagated by the moon in the German Ocean, when she is three hours past the meridian, takes twelve hours longer to come to London Bridge, so that when it is high water there, a new tide is already come to its height in the ocean; and in some intermediate place, it must be low water at the same time.

481. At several places, it is high water three hours before the moon comes to her meridian; but that tide, which the moon pushes as it were before her, is only the tide opposite to that which was raised by her, when she was nine hours past the opposite meridian.

482. There are no sensible tides in the Baltic, the Mediterranean, or the Black Seas; for they communicate with the ocean by such narrow inlets, and are of so immense an extent, that they cannot speedily receive and empty water enough, to raise or depress their surfaces sensibly. In the Caspian Sea, and in lakes, &c. the moon's attraction is nearly the same upon all parts of their surface, so that no sensible swelling can take place in their waters.

483. We may also conclude, that by reason of the fluidity of the atmosphere, it must have tides similar to those of the ocean; and hence, there will be a general current from east to west, both of the waters of the ocean, and of the air; but the changes produced in the state of the atmosphere, from chemical causes, will so much affect the general current, as to prevent it from being perceived.

484. We shall conclude this subject with a table, by the aid of which the time of high water may be found with great ease and correctness.

Table for finding the Time of High Water; being the Correction of the Moon's southing.

Moon's pass. over Merid.	Moon's Semidiameter.			Moon's pass. over Merid.	Moon's pass. over Merid.	Moon's Semidiameter.			Moon's pass. over Merid.
	14′ 30″	15′ 30″	16′ 30″			14′ 30″	15′ 30″	16′ 30″	
H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
0 0	— 0 4	— 0 0	+ 0 5	12 0	6 0	— 0 55	— 1 3	— 1 12	18 0
20	— 8	— 5	+ 1	20	20	— 49	— 55	— 1 3	20
40	— 12	— 10	— 8	40	40	— 43	— 47	— 0 53	40
1 0	— 17	— 16	— 15	13 0	7 0	— 32	— 34	— 37	19 0
20	— 22	— 22	— 22	20	20	— 22	— 22	— 22	20
40	— 27	— 28	— 29	40	40	— 11	— 9	— 6	40
2 0	— 31	— 33	— 36	14 0	8 0	— 1	+ 3	+ 9	20 0
20	— 36	— 39	— 43	20	20	+ 5	+ 11	+ 19	20
40	— 40	— 44	— 50	40	40	+ 11	+ 19	+ 29	40
3 0	— 44	— 49	— 55	15 0	9 0	+ 14	+ 21	+ 32	21 0
20	— 48	— 54	— 1 2	20	20	+ 16	+ 24	+ 36	20
40	— 51	— 58	— 1 7	40	40	+ 16	+ 23	+ 35	40
4 0	— 55	— 1 2	— 1 12	16 0	10 0	+ 15	+ 23	+ 34	22 0
20	— 57	— 1 5	— 1 15	20	20	+ 13	+ 20	+ 30	20
40	— 59	— 1 7	— 1 18	40	40	+ 11	+ 18	+ 28	40
5 0	— 1 0	— 1 8	— 1 19	17 0	11 0	+ 7	+ 14	+ 23	23 0
20	— 1 1	— 1 9	— 1 20	20	20	+ 4	— 10	+ 18	20
40	— 0 58	— 1 5	— 1 16	40	40	+ 0	— 5	+ 11	40
6 0	— 0 55	— 1 3	— 1 12	18 0	12 0	— 4	+ 0	+ 5	24 0

485. To find the time of high water by this table, seek in the Nautical Almanack, White's Ephemeris, or any other similar astronomical work, for the time of the moon's passing the meridian of Greenwich; with which enter the table, and take out the corresponding correction of the said time of the moon's meridian passage, and apply it by addition or subtraction as directed in the table, and add the result to the time of high water at the proposed place on the full and change days, and the sum rejecting twenty-four hours if necessary, will be the hours and minutes past noon, when it willbe high water.

Sect. VI.—Of the Harvest Moon.

486. It is remarkable, that the moon, during the week in which she is full about the time of harvest, rises sooner after sun-set, than she does in any other full moon week throughout the year. By this means, she affords an immediate supply of light after sun-set, which is very beneficial for those employed in the harvest, and gathering in the fruits of the earth. Hence this full moon is distinguished from all others in the year, by calling it the Harvest Moon.

487. To conceive the reason of this phenomenon, it may first be considered, that the moon is always opposite to the sun when she is full, and therefore, in the harvest months, she is full in Pisces and Aries, which are opposite to Virgo and Libra, the signs occupied by the sun about the same season. Now the signs Pisces and Aries rise in a shorter space of time than others, as is easily shown and illustrated by a celestial globe; and the same thing may be conceived from this circumstance, that in northern latitudes, the smallest angle made by the ecliptic and horizon, is when Aries rises, at which time Libra sets; and it is obvious, that the smaller the angle contained by the ecliptic and horizon, the greater portion of the ecliptic will rise by the earth's rotation in a given time. Consequently, when the moon is full in harvest, she rises with less difference of time, or more immediately after sunset, than at any other season of the year.

488. In our winter the moon is in Pisces and Aries, about the time of her first quarter, when she rises about noon, and therefore, her rising is not then noticed.

489. In spring the moon is in Pisces and Aries about the time of her change, but as she then gives no light, and rises with the sun, her rising cannot be perceived.

490. In summer the moon is in Pisces and Aries at the time of the last quarter, and then, as she does not rise till midnight, her rising usually passes unobserved.

491. But, in autumn, the moon is in Pisces and Aries at the time of her full, and rises soon after sun-set, for several evenings successively; which makes her regular risings very conspicuous at that time of the year.

492. All this would happen, if the moon's orbit lay in the ecliptic; but her orbit makes with the ecliptic an angle of 5° 18′, and crosses

it in two points, called her nodes; so that her rising, when in Pisces and Aries, will sometimes not differ above an hour and forty minutes, through a whole week; and at other times, in the same two signs she will differ in a week 3½ hours in the time of her rising, according to the different positions of the nodes with respect to the signs; which positions are always changing, because the nodes go backward through the ecliptic in eighteen years, 225 days.

493. This revolution of the nodes causes the harvest moons to go through a whole course of the most advantageous and least beneficial states, with respect to the harvest, every nineteen years. They were least beneficial in 1796, and continued so until 1797; after which, they became most beneficial from that period to 1806. In 1807 they again became least beneficial, and continued so till 1815. Their most advantageous period began again in 1816, and lasted till 1825, when the opposite period commenced, and will last until the year 1834; then again they will be most beneficial from 1835 to 1843; and so on.

Sect. VII.—Of the Horizontal Sun and Moon.

494. Philosophers have been much at a loss to account for the apparent magnitude of the sun and moon, being greater when they are in the horizon, than when elevated above it. For, according to the laws of vision, they should appear least, when nearest the horizon, because they are then farthest from the eye; and yet, it is found, that the contrary is true, in fact. Thus, although the diameter of the moon, when in the horizon, as measured by an instrument, is not found to be greater than when measured at her greatest elevation in the meridian, yet her apparent diameter, when in the horizon, seems to the eye two or three times greater than when she is considerably elevated above it.

495. According to Alhazen, one of the earliest writers on optics, the sight apprehends the surface of the heavens as flat, and judges of the stars, as it would of ordinary objects extended upon a wide plain. The eye sees them indeed under equal angles, but at the same time perceives a difference in their distances, and (on account of the semi-diameter of the earth, which is interposed in the one case, but not in the other) it is hence induced to judge those that appear more remote to be greater.

496. Des Cartes, and from him Dr. Wallis and most other authors, account for the appearance of a different distance under the same angle, from the long series of objects interposed between the eye and the extremity of the horizon, which makes us imagine it is more remote than when in the meridian, where the eye sees nothing in the way between itself and the object. This idea of a great distance makes us imagine the luminary larger; for an object being seen under any certain angle, and believed at the same time more remote, we naturally imagine it to be very large, to appear under such an angle at such a distance, and thus a pure judgment of the mind makes us see the sun or the moon larger in the horizon than in the meridian, notwithstanding their diameters, when measured, are really less in the former situation than in the latter.

497. This opinion, however seems hardly tenable, although it be sanctioned by the authority of very eminent men; for it is daily seen, that the sun and moon, when near the horizon, very suddenly change their magnitude as they ascend and descend, though all the intervening objects remain the same as before; and the luminaries appear largest of all, when fewest objects appear on the earth, as in a thick fog or mist.

498. Dr. Desaguliers has endeavoured to explain the appearance of the horizontal moon, on the supposition that we imagine the visible heavens to be only a small portion of a spherical surface, and consequently suppose the moon to be farther from us in the horizon than near the zenith; and he has shown how liable we are to such deceptions.

499. Upon this idea, Dr. Smith has determined, in his optics, that the centre of the apparent spherical segment of sky, lying much below the eye, the apparent distance of its parts, near the horizon, is about three or four times greater than the apparent distance of its parts over head; for which reason it is, he infers, that the moon always appears larger as she is lower, and also that we always think the height of a celestial object to be greater than it really is.

500. Of the apparent figure of the sky, we shall have occasion to treat more fully under optics; and shall only observe here, that if it be allowed, that we judge of the apparent magnitude of the heavenly bodies, by the arc which they cover of the concave sky, it is evident, since the sky appears to us as a segment less than a hemisphere, that the horizon will appear farther distant than the zenith; and therefore the sun and moon, while in the horizon, will cover a larger portion of the apparent sky, than when more elevated, and thus their apparent diameter will be greater.

Sect VIII.—Of the Refraction of Light by the Atmosphere.

501. If it were not for the atmosphere, the rays of light that come from the heavenly bodies, and by which they are seen, would enter the eye in the direction of a straight line joining the luminous body and the eye. But the earth being covered to a considerable height with an atmosphere of unequal density, a ray of light falling obliquely upon its surface, instead of continuing to move forward in the same rectilineal direction, is bent downwards into a curve, in its future progress; and enters the eye in a direction differing more or less from its original one, according as it falls upon the atmosphere, with a greater or less degree of obliquity.

502. This effect may be thus illustrated: Suppose Z Y, plate IV. fig. 7, a quadrant of a vertical circle described from the centre of the earth T, under which is A B a quadrant of a circle on the surface of the earth, and G H a quadrant of the surface of the atmosphere. Then suppose S E a ray of light emitted from a star at S, and falling on the atmosphere at E; because the ray passes out of a rare medium (and most probably a perfect vacuum) into a denser medium; by the laws of optics, it will be refracted towards the perpendicular, or more inclined towards the earth; and since the

farther that a ray descends in the atmosphere, the more dense is the medium through which it passes, it will move in the curve E A, and at last enter the eye in the direction of A F Q, a tangent to the curve. Therefore the star will appear at Q instead of S, and thus its apparent place Q will be nearer the zenith than its true place.

503. The nearer the star S is to the horizon, the greater will be the refraction as well as the distance between the apparent and true place of the star. Hence the heavenly bodies appear to be above the horizon, by reason of the refraction, when they are really below it. There is no refraction in the zenith, for a ray, coming from Z, will fall perpendicularly on the surface of the atmosphere at G, and continue its rectilinear course to the eye at A.

The following neat and elegant method of computing the atmospherical refraction has been given by Dr. Brinkley, the present learned and active professor of astronomy at Dublin:

504. Let L I, fig. 7, plate VI, be a ray of light falling on the atmosphere at I, and refracted in the curvineal course I S. The object appears to a spectator at S in the direction S T, a tangent to the curve, V S T is the apparent zenith distance. The space in the figure between the concentric circles represents all the atmosphere which has any effect on the ray of light, so that the light may be considered as passing out of a vacuum into this space.

505. If the surface of the earth were a plane, the different strata of air might be considered as parallel thereto; and by the principles of optics, the refraction would be the same as would take place were the ray of light to pass from a vacuum into air of the same density with that at the surface. It is therefore evident, that if we take into account the spherical form of the earth and atmosphere, the error resulting from the supposition of an uniform atmosphere will necessarily be very small, compared with the change occasioned by considering the atmosphere spherical, provided that change be small.

506. Let $m : 1 ::$ sin. of incidence : sin. of refraction, when a ray of light passes from a vacuum into air of the density of that at the surface of the earth. Suppose all the air contracted into an uniform atmosphere, then S I is a right line. Let $H I L = i$, $S I C = r$, $V S I = z$, $S C = a$, the height of the uniform atmosphere $= l$, or $C I = a + l$.

$$a + l : a :: \text{sin. } z : \text{sin. } r$$
$$1 : m :: \text{sin. } r : \text{sin. } i.$$

Hence

$$\text{sin. } i = \frac{m\,a\,\text{sin. } z}{a+l} = m\ \text{sin. } z\left(1 - \frac{l}{a}\right) \text{nearly.}$$

$$\text{sin. } r = \frac{a\,\text{sin. } z}{a+l} = \text{sin. } z\left(1 - \frac{l}{a}\right) \text{nearly.}$$

Let $i = r + R$, then R is the quantity of refraction. Sin. $(r + R) =$ sin. i.
Or, because R is small, sin. r + cos. r sin. R = sin. i, or sin r + R sin. $1''$ cos. r = sin. i, substituting in this equation for sin. r and sin. i, as above. Also for cos. r.

$$\sqrt{1 - \text{sin.}^2 z\left(1 - \frac{l}{a}\right)} =$$

$$\sqrt{\text{cos.}^2 z + \frac{z\,l}{a}\ \text{sin.}^2 z} =$$

$$\text{cos. } z\left(1 + \frac{l}{a}\ \text{tan.}^2 z\right)$$

nearly, we obtain

$$R = \frac{\text{sin. } i.\text{—sin. } r}{\text{sin. } 1'' \times \text{cos } r} = \frac{\overline{m-1}\cdot \text{sin. } z\cdot\left(1 - \frac{l}{a}\right)}{\text{sin. } 1''.\ \text{cos. } z\left(1 + \frac{l}{a}\ \text{tan.}^2 z\right)}$$

$$= \frac{(m-1)\ \text{tan. } z}{\text{sin. } 1''} - \frac{(m-1)\ l.\ \text{tan.}^2 z}{a\ \text{sin. } 1''\ \ \text{cos.}^2 z} \text{ nearly.}$$

507. Taking $z = 80°$, $2 = 5$ and $a = 4000$ miles, the second term (arising from the spherical figure of the atmosphere) $= 10''$ nearly. If a were indefinite, that is, if the surface of the earth were a plane, this second term would vanish. Hence we may safely conclude, that as far as 80 zenith distance, the error arising from supposing the atmosphere of uniform density must be much less than $10''$, and that consequently the above expression gives the refraction as far as 80 from the zenith with sufficient accuracy. If we neglect the second term, the refraction will vary as the tangent of the zenith distance.

508. The exact experiments of M. M. Biot and Arago, have determined the value of $m - 1 =$, ·0002946, when the barometer is at 29,93 (in metre) and Fah. therm. at 32°. From their experiments, and the law of expansion of air, it may be inferred that $\frac{m-1}{\text{sin. } 1''} = \frac{1{,}0375}{1 + {,}002083\ (t - 32)} \times \frac{b}{29{,}60} \times 57'' 82$, nearly where b is height of the barometer, and t that of Fahrenheit's thermometer. When $t = 50°$ and $b = 29{,}60$ inches, this expression gives $\frac{m-1}{\text{sin } 1''} = 57{\cdot}82$, a result independent of astronomical observations.

509. The French tables of refraction, by Delambre, founded on astronomical observations, give $\frac{m-1}{\text{sin. } 1''} = 57{\cdot}72''$; and from upwards of 500 observations made by himself, Dr. Brinkley finds $\frac{m-1}{\text{sin. } 1''} = 57{\cdot}56''$.

510. Mr. H. Atkinson, in a memoir recently read before the Astronomical Society of London, and printed in the forth-coming part of the Society's Memoirs, has treated the subject of refractions in a manner altogether new; and has evinced talents for scientific investigation which place him in a high rank among the philosophers of the present day. He treats the question altogether as one depending on the optical properties of air, by dividing the whole atmosphere into various concentric strata, and computes the deviation produced by refraction on each stratum. We should be glad, did our limits permit us, to quote very largely from this most elaborate and instructive essay, but we must content ourselves with extracting one of the results of his labors in a

511. *Table of Mean Refraction, adapted to 50° Fahrenheit, and 29·6 inches of Barometric pressure*

Zenith dist.	Refraction.	Zenith dist.	Refraction.	Zenith dist.	Refraction.	Zenith dist.	Refraction.
1° 0′	0′ 1·01″	58° 30′	1′ 33·87″	76° 20′	3′ 52·93″	84 40″°	9′ 15·59″
2 0	0 2·01	59 0	1 35·72	76 30	3 55·80	84 45	9 22·86
3 0	0 3·02	59 30	1 37·64	76 40	3 58·74	84 50	9 30·32
4 0	0 4·03	60 0	1 39·60	76 50	4 1·75	84 55	9 37·95
5 0	0 5·05	60 20	1 40·93	77 0	4 4·83	85 0	9 45·77
6 0	0 6·06	60 40	1 42·30	77 10	4 8·00	85 5	9 53·79
7 0	0 7·08	61 0	1 43·70	77 20	4 11·23	85 10	10 2·01
8 0	0 8·11	61 20	1 45·13	77 30	4 14·55	85 15	10 10·44
9 0	0 9·14	61 40	1 46·59	77 40	4 17·95	85 20	10 19·09
10 0	0 10·17	62 0	1 48·08	77 50	4 21·43	85 25	10 27·96
11 0	0 11·21	62 20	1 49·60	78 0	4 25·00	85 30	10 37·00
12 0	0 12·26	62 40	1 51·16	78 10	4 28·66	85 35	10 46·41
13 0	0 13·32	63 0	1 52·75	78 20	4 32·41	85 40	10 50·01
14 0	0 14·38	63 20	1 54·37	78 30	4 36·27	85 45	11 5·87
15 0	0 15·46	63 40	1 56·03	78 40	4 40·23	85 50	11 16·00
16 0	0 16·54	64 0	1 57·73	78 50	4 44·30	85 55	11 26·40
17 0	0 17·64	64 20	1 59·48	79 0	4 48·48	86 0	11 37·09
18 0	0 18·74	64 40	2 1·26	79 10	4 52·79	86 5	11 48·09
19 0	0 19·86	65 0	2 3·10	79 20	4 57·21	86 10	11 59·41
20 0	0 21·00	65 15	2 4·50	79 30	5 1·76	86 15	12 11·05
21 0	0 22·14	65 30	2 5·92	79 40	5 6·43	86 20	12 23·03
22 0	0 23·31	65 45	2 7·38	79 50	5 11·25	86 25	12 35·36
23 0	0 24·49	66 0	2 8·86	80 0	5 16·21	86 30	12 48·05
24 0	0 25·68	66 15	2 10·76	80 10	5 21·31	86 35	13 1·13
25 0	0 26·90	66 30	2 11·91	80 20	5 26·57	86 40	13 14·61
26 0	0 28·13	66 45	2 13·48	80 30	5 32·00	86 45	13 28·50
27 0	0 29·39	67 0	2 15·08	80 40	5 37·59	86 50	13 42·82
28 0	0 30·67	67 15	2 16·71	80 50	5 43·37	86 55	13 57·59
29 0	0 31·97	67 30	2 18·38	81 0	5 49·33	87 0	14 12·83
30 0	0 33·30	67 45	2 20·08	81 10	5 55·50	87 5	14 28·55
31 0	0 34·66	68 0	2 21·82	81 20	6 1·87	87 10	14 44·78
32 0	0 36·04	68 15	2 23·60	81 30	6 8·46	87 15	15 1·54
33 0	0 37·45	68 30	2 25·41	81 40	6 15·27	87 20	15 18·86
34 0	0 38·90	68 45	2 27·27	81 50	6 22·32	87 25	15 36·75
35 0	0 40·38	69 0	2 29·17	82 0	6 29·63	87 30	15 55·24
36 0	0 41·89	69 15	2 31·12	82 5	6 33·37	87 35	16 14·36
37 0	0 43·45	69 30	2 33·11	82 10	6 37·19	87 40	16 34·14
38 0	0 45·05	69 45	2 35·14	82 15	6 41·7	87 45	16 54·60
39 6	0 46·69	70 0	2 37·21	82 20	6 45·03	87 50	17 15·78
40 0	0 48·38	70 15	2 39·32	82 25	6 49·07	87 55	17 37·69
41 0	0 50·12	70 30	2 41·49	82 30	6 53·18	88 0	18 0·41
42 0	0 51·91	70 45	2 43·72	82 35	6 57·37	88 5	18 24·06
43 0	0 53·76	71 0	2 46·00	82 40	7 1·65	88 10	18 48·57
44 0	0 55·66	71 15	2 48·36	82 45	7 6·01	88 15	19 13·95
45 0	0 57·63	71 30	2 50·77	82 50	7 10·45	88 20	19 40·24
46 0	0 59·67	71 45	2 53·23	82 55	7 14·98	88 25	20 7·39
47 0	1 1·79	72 0	2 55·75	83 0	7 19·60	88 30	20 35·58
48 0	1 3.98	72 15	2 58·33	83 5	7 24·31	88 35	21 4·88
49 0	1 6·27	72 30	3 0·98	83 10	7 29·12	88 40	21 35·31
50 0	1 8·64	72 45	3 3·71	83 15	7 34·02	88 45	22 7·02
50 30	1 9·87	73 0	3 6·51	83 20	7 39·03	88 50	22 39·92
51 0	1 11·12	73 15	3 9·40	83 25	7 44·13	88 55	23 14·05
51 30	1 12·40	73 30	3 12·36	83 30	7 49·35	89 0	23 49·49
52 0	1 13·71	73 45	3 15·41	83 35	7 54·67	89 5	24 26·42
52 30	1 15·04	74 0	3 18·56	83 40	8 0·11	89 10	25 4·66
53 0	1 16·41	74 15	3 21·79	83 45	8 5·66	89 15	25 44·26
53 30	1 17·81	74 30	3 25·13	83 50	8 11·34	89 20	26 25·25
54 0	1 19·24	74 45	3 20·56	83 55	8 17·13	89 25	27 7·36
54 30	1 20·71	75 0	3 32·09	84 0	8 23·06	89 30	27 51·22
55 0	1 22·21	75 10	3 34·51	84 5	8 29·12	89 35	28 36·89
55 30	1 23·75	75 20	3 36·97	84 10	8 35·31	89 40	29 24·47
56 0	1 25.33	75 30	3 39·49	84 15	8 41·65	89 45	30 14·05
56 30	1 26·95	75 40	3 42·06	84 20	8 48·13	89 50	31 5·72
57 0	1 28·61	75 50	3 44·69	84 25	8 54·73	89 55	31 59·57
57 30	1 30·31	76 0	3 47·38	84 30	9 1.54	90 0	32 55·72
58 0	1 32·07	76 10	3 50·12	84 35	9 8·48		

512. This refraction of the light by the atmosphere produces the twilight; for while the sun is less than 18° below the horizon, his rays, although prevented from reaching us directly, by reason of the interposed body of the earth, yet fall upon the superior regions of the atmosphere, and are so refracted and reflected by its particles as to produce a brightness over the horizon, which continues through the whole night during the summer months, in the regions of the earth towards the poles.

513. The subject of twilights has given rise to a problem which, from the talents of the mathematicians who have applied themselves to its investigation, has obtained considerable celebrity. The problem is, to find the day in any given latitude in which the *twilight is the shortest*. It might be imagined that the twilights would increase from midsummer to midwinter; but this both observation and theory show not to be the case; for though the twilights continue to increase in duration for some time after the sun's declination, allowed a denomination different from the latitude, yet they reach a maximum, after which they again increase.

514. In fig. 11, plate VI, let P be the pole, Z the zenith, HO the horizon, AL the boundary of twilight, S *s* the places of the sun at the beginning and end of twilight. Draw the great circles PS, P*s*, ZS, and Z*s*, also PR = ZP, making the angle ZPR = ∠ SP*s*, and complete the triangle Z R *s* with great circles ZR, RS. Then as the ∠ ZPR = ∠ SP*s*, we have the ∠ RP*s* = ∠ ZPS; also, since P*s* = PS, and PR = PZ, the triangles RP*s*, ZPS, are similar and equal: therefore R*s* = ZS, and in the triangle Z R *s* we have given ZS and R*s*, and as ZP, RP, are equal and given, and the ∠ ZPR = ∠ SP*s* a minimum, we shall have ZR the least possible, which by the writers on spherics it is shewn to be when = Z*s* — R*s*, R*s* coincide: hence the following

CONSTRUCTION.—With ZP, *r* P, each = colat of the place, and Z*r* = Z*s* — R*s* (ZS) = 18°; describe the isosecles triangle ZP*r* prolong Z*r* making *rs* = ZS = 90, draw P*s*, which is the co-declination of the sun on the required day.

515. CALCULATION.—Draw P*z* perpendicular and bisecting Z*r* in *z*, then, by spherical trigonometry, we have cos. *zr* : rad. 1 : : cos. P*r* : cos. P*z*, or cos. $Pz = \frac{\text{cos. P}r}{\text{cos. }zr}$: and in the triangle *z*P*s*, as rad. 1 : cos. *zs* : : cos. P*z* = $\frac{\text{cos. P}r}{\text{cos. }zr}$ ∴ cos. P*s*, or sin. decl. = $\frac{\text{cos.}zs \times \text{cos. P}r}{\text{cos. }zr}$

$= \frac{\text{cos. } 99^\circ \times \text{ sine lat.}}{\text{cos. } 9^\circ.} = \frac{-\text{ sine } 9^\circ \times \text{ sine lat.}}{\text{cos. } 9^\circ.}$

= — tang. 9° × sine lat. A simple and general theorem, from which it appears that the declination and latitude are of contrary names. From this theorem it appears, that the shortest twilight at Petersburgh is about October 14th; at London, October 11th, and at Rome, October 9th.

516. The rays of light are equally refracted by the atmosphere, whether they come from the sun, the moon, or the stars; but the quantity of the refraction, and therefore the duration of the twilight, are influenced by the changes which are perpetually taking place with respect to the heat and cold, the moisture and dryness, &c. of the atmosphere.

PART IV.

ASTRONOMICAL OPERATIONS AND CALCULATIONS.

SECT. I.—OF DRAWING A MERIDIAN LINE.

517. Upon a plain board, set parallel to the horizon, describe a circle A B F, as in plate VIII. fig. 2. And upon the centre C, erect a stile or gnomon, exactly perpendicular to it, and so high, that the top of the shadow thereof may fall upon the circumference of the circle about the middle of the forenoon. Mark the point B exactly where the top of the shadow falls in the forenoon, and the point F where the top of the shadow falls on the circumference, in the middle of the afternoon. Then, through the centre C, draw the line A C D, bisecting the arch BF. The A D is the meridian required.

518. It is proper to draw several concentric circles, and to make observations with them all, that they may confirm one another. If the sun happens to be clouded in one, it may be clear in another. It is best to make these observations about the solstices, when the sun does not alter his declination sensibly; and the summer solstice is to be preferred.

519. The sun is evidently highest when in the meridian; and at equal distances therefrom has equal altitudes. Therefore, when the distances D B, D F, are equal, the shadows C B, C F, will be equal, and therefore the altitudes equal. And vice versa.

520. 2. Hang up two threads and plummets A B, C D, plate VIII. fig. 13, at a good distance, in vessels of water, to keep them steady; of which C D is movable towards the left and right, upon a pin C. Wait till the polar star, E, and the star Alioth, F, (in the great bear's rump), come into the same plumb line, A B, to an eye placed at I. At that instant (or rather before) move the thread C D also into the same line; so that the thread C D may hide the thread A B, and the polar star E from the eye at I. Then the plane A B C D is the plane of the meridian; and where it intersects the horizontal plane, is the meridian line. And the same may be done with the star, called Cassiopeia's hip. To take away the star's rays, look through a small hole in a thin plate. This must be performed in a calm place.

521. If it is wished to have a meridian drawn in some other place, let the threads and plummets A B, C D, remain; and hang up two others *a b*, *c d*, in the place proposed, as in fig. 14, letting *a b* be movable upon a pin at *a*. Then wait till any star, as G, comes into the plane *a b c d* to the eye, at *h*; and at that instant, move the thread *a b*, till the same star G fall in the plane *a b c d*, to the eye at *h*; then *a b c d* is the plane of the meridian. This is best done by the help of an assistant. This method will in time deviate a little from the truth, occasioned by the stars changing their places; but that change is very inconsiderable for several years.

522. 3. Having a clock or watch, with minutes and seconds, find the northing of the star, Alioth, F, fig. 13, by the astronomical tables; and

wait till the polar star E is in a plumb line with F. At that instant, set the clock to the said time of northing. And next day at twelve o'clock, draw a meridian line, by the shadow of a plumb line hung in the sun. Or find the time of southing of any other star, as G, and the clock remaining as before, when she shows the time of southing, place the threads *ab*, *cd*, fig. 14, so that the line G*h* may pass through them both. Then *abcd* will be in the plane of the meridian.

523. These methods are only to be considered as affording a first and very rough approximation to the meridian, and may assist in placing a transit instrument nearly in its position with respect to the meridian, previously to the application of the more exact methods by which the final adjustment is made.

Sect. II.—Of Finding Time, and the Equation of Time.

524. Having drawn a meridian line, as directed in the last article, the time when the sun, or any other celestial body is exactly in the meridian, may be found by a common quadrant, placing the edge of it along the line, and observing when the sun or other luminary can be seen exactly through its two sights, and noting exactly the time; which, supposing the luminary viewed to be the sun, will be precisely noon, or twelve o'clock: but, as the apparent diameter of the sun is pretty large, it ought to be known exactly when his centre is in the meridian, which will be some short space after his eastern limb has arrived at it, and before his western limb comes thither. It will be proper, therefore, to observe exactly the time of the two limbs being seen through the sights of the quadrant; and the half of the difference between these times, added to the one or subtracted from the other, will give the exact time when the sun's centre is in the meridian.

525. The same method is equally applicable to the moon; but not to the stars, which have no sensible diameter. It is found, by observation, that the stars appear to go round the earth in twenty-three hours, fifty-six minutes, four seconds, and the sun in twenty-four hours; so that the stars gain three minutes, fifty-six seconds upon the sun every day, which amounts to one diurnal revolution in a year; and therefore, in 365 days, as measured by the returns of the sun to the meridian, there are 366 days as measured by the stars returning to it: the former are called solar days, and the latter siderial.

526. These may be considered as first steps in the determination of this important element. With the aid of a transit instrument, the time can always be determined with the greatest simplicity and exactness. But supposing the latitude of the place of observation to be known, the time may be deduced with great ease and precision from the altitude of any celestial object observed with a quadrant or sextant, taken by reflection from a basin of water or quicksilver. Equal altitudes of stars, perhaps, furnish the most ready and convenient method of determining the time, as the use of trigonometrical formulæ is not required; and there is besides no farther dependence on the goodness of the instrument, than that it shall be in the same state at both observations.

527. As we shall have occasion, when treating of Nautical Astronomy (which we shall do under the article Navigation), to explain the various ways by which time may be found, and consequently, how clocks may be regulated, we shall here merely give the practical method of finding the error of a clock by equal altitudes of fixed stars.

528. Take the altitude of a star when eastward of the meridian, and mark the time by the clock when the observation is made; wait till the star when west of the meridian comes to the same altitude, and mark the time by the clock. Half the sum of these times will be the time by the clock when the star is on the meridian. Now the siderial time at which a star is on the meridian is equal to the star's right ascension; and the solar or apparent time is obtained by subtracting the sun's right ascension from the star's. Hence the error of the clock, either for mean or siderial time, is obtained at once. In practice, however, it is preferable to take several altitudes, and their corresponding times, both eastward and westward of the meridian, and to take half the sum of the mean of the times for the time by the chronometer at which the star passes the meridian.

529. For example, suppose that on February 20th, 1826, the time at which Regulus had the following altitudes, was as under:

Times E. of the merid.			Alts.	Times W. of the merid.		
h.	m.	s.		h.	m.	s.
9	4	26	38° 0′	16	43	14
	5	14	10′		42	26
	6	7	20′		41	31
	6	58	30′		40	43
9	5	41·25	mean.	16	41	58·5
				9	5	41·25
				25	47	39·75
				12	53	49·87 Time

by the chronometer when the star is on the meridian. Hence by comparing this with the star's right ascension on the same day (9 h. 59 m. 8·8 s.), it is found that the watch is 2h. 54m. 41·07 s. fast for siderial time.

530. If the earth had no annual motion, but only a diurnal, any given meridian would revolve from the sun to the sun again, in the same quantity of time as from any star to the same star again; because the sun would never change his place with respect to the stars. But, as the earth advances almost a degree eastward in its orbit, in the time that it turns eastward round its axis, whatever star passes over the meridian on any day with the sun, will pass over the same meridian on the next day, when the sun is almost a degree short of it; that is, three minutes, fifty-six seconds sooner. If the year contained only 360 days, as the ecliptic does 360 degrees, the sun's apparent place, so far as his motion is equable, would change a degree every day; and then the siderial days would be just four minutes shorter than the solar.

531. As the motion of the earth round its axis is perfectly uniform and equal at all times of the year, the siderial days are always precisely of an

equal length; and so would the solar or natural days be, if the earth's orbit were a perfect circle, and its axis perpendicular to its orbit. But the earth's diurnal motion on an inclined axis, and its annual motion in an elliptic orbit, cause the sun's apparent motion in the heavens to be unequal: for sometimes he revolves from the meridian to the meridian again in somewhat less than twenty-four hours, shewn by a well-regulated clock; and at other times in somewhat more: so that the time shewn by a good clock and a true sun-dial is never exactly the same, excepting on the 15th of April, the 16th of June, the 31st of August, and the 24th of December. The clock, if it goes equably and true all the year round, will be before the sun from the 24th of December till the 15th of April; from that time till the 16th of June, the sun will be before the clock; from the 16th of June till the 31st of August, the clock will be again before the sun; and from thence to the 24th of December, the sun will be faster than the clock.

532. The equation of time, therefore, or difference between the time shewn by a well-regulated clock and a true sun-dial, depending upon two causes, viz. the obliquity of the ecliptic, and the unequal motion of the earth in it, the united effects, resulting from their combination, may be explained in the following manner:—

533. Let Z ♈ *z* ♎, in plate V, fig. 1, be the earth; Z F R *z*, its axis; *a b c d e*, &c. the equator; A B C D E, &c. the northern half of the ecliptic from ♈ to ♎ on the side of the globe next the eye; and M N O P, &c. the southern half on the opposite side from ♎ to ♈. Let us suppose a fictitious sun to set out from ♈, at the same instant with the real sun. Let the points at A B C D E F G, &c. quite round, from ♈ to ♈ again, bound equal portions of the ecliptic, gone through in equal times by the real sun; and those at *a b c d e f g*, &c. equal portions of the equator described in equal times by the fictitious sun; and let Z ♈ *z* be the meridian.

534. As the real sun moves obliquely in the ecliptic, and the fictitious sun directly in the equator, with respect to the meridian; a degree, or any number of degrees, between ♈ and F on the ecliptic, must be nearer the meridian Z ♈ *z*, than a degree, or any corresponding number of degrees, on the equator from ♈ to *f*; and the more so, as they are the more oblique: and therefore the true sun comes sooner to the meridian every day, whilst he is in the quadrant ♈ F, than the fictitious sun does in the quadrant ♈ *f*; for which reason, the solar noon precedes noon by the clock, until the real sun comes to F, and the fictitious to *f*; which two points, being equidistant from the meridian, both suns will come to it precisely at noon by the clock.

535. While the real sun describes the second quadrant of the ecliptic F G H I K L, from Cancer to ♎, he comes later to the meridian every day, than the fictitious sun moving through the second quadrant of the equator, from *f* to ♎; for the points at G H I K, and L, being farther from the meridian, their corresponding points at *g h i k* and *l*, must be later in coming to it: and as both suns come at the same moment to the point ♎, they come to the meridian at the moment of noon by the clock.

536. In departing from Libra, through the third quadrant, the real sun going through M N O P Q towards ♑ at R, and the fictitious sun through *m n o p q* towards *r*, the former comes to the meridian every day sooner than the latter until the real sun comes to ♑, and the fictitious to *r*, and then they come both to the meridian at the same time. Lastly, as the real sun moves equably through S T U V W, from ♑ towards ♈; and the fictitious sun through *s t u v w*, from *r* towards ♈, the former comes later every day to the meridian than the latter, until they both arrive at the point ♈, and then they make it noon at the same time with the clock.

537. We now proceed to explain the other cause of this difference, viz. the inequality of the sun's apparent motion, which is slowest in summer, when the sun is farthest from the earth, and swiftest in winter when he is nearest to it.

538. As the real sun moves unequably in the ecliptic, let us suppose a fictitious sun to move equably in a circle coincident with the plane of the ecliptic. Let A B C D in plate V., fig. 2, be the ecliptic or orbit in which the real sun moves, and the dotted circles *a b c d* the imaginary orbit of the fictitious sun: each going round in a year according to the order of letters, or from west to east. Let H I K L be the earth turning round its axis the same way every twenty-four hours; and suppose both suns to start from A and *a*, in a right line with the plane of the meridian E H, at the same moment: the real sun at A, being then at his greatest distance from the earth, at which time his motion is slowest; and the fictitious sun at *a*, whose motion is always equable, because his distance from the earth is supposed to be always the same. In the time that the meridian revolves from H to H again, according to the order of the letters H I K L, the real sun has moved from A to F; and the fictitious with a quicker motion from *a* to *f*, through a large arc: therefore, the meridian E A will revolve sooner from H to *h* under the real sun at F, than from H to *k* under the fictitious sun at *f*; and consequently it will then be noon by the sun-dial sooner than by the clock.

539. As the real sun moves from A towards C, the swiftness of his motion increases all the way to C, where it is at the quickest. But notwithstanding this, the fictitious sun gains so much upon the real, soon after his departing from A, that the increasing velocity of the real sun does not bring him up with the equally moving fictitious sun, till the former comes to C, and the latter to *c*, when each has gone half round its respective orbit; and then being in conjunction, the meridian E H, revolving to E K, comes to both suns at the same time, and therefore it is noon by them both at the same moment.

540. But the increased velocity of the real sun, now being at the quickest, carries him before the fictitious one; and therefore, the same meridian will come to the fictitious sun sooner than to the real: for whilst the fictitious sun moves from *c* to *g*, the real sun moves through a greater arc from C to G: consequently, the point K has its noon by the clock when it comes to *k*, but not its noon by the sun till it comes to *l*. And although the velocity of the real sun diminishes all the way from C to A, and the fictitious sun

by an equable motion is still coming nearer to the real sun, yet they are not in conjunction till the one comes to A and the other to *a*, and then it is noon by them both at the same moment.

541. Thus, it appears, that the solar noon is always later than noon by the clock, whilst the sun goes from C to A; sooner, whilst he goes from A to C; and at these two points the sun and clock being equal, it is noon by them both at the same moment. Upon these principles tables for the equation of time are calculated, the one giving the difference between the sun's true and mean motion; the other the difference between the sun's longitude and right ascension; from which the arc is calculated by addition or subtraction. But the calculation cannot, from the precession of the equinoxes, be depended upon for a considerable length of time.

542. By means of the following Table, however, of the Equation of Time for 1824, and the subjoined auxiliary Table, the Equation of Time may be found for any subsequent year in the present century, with sufficient exactness for regulating clocks and watches for the practical purposes of civil life.

543 *Equation of Time, when the Sun is on the Meridian of Greenwich, for every day in the year* 1824.

Days.	Jan.		Feb.		Mar.		April		May.		June		July		Aug.		Sept.		Oct.		Nov.		Dec.	
	Add		Add		Add		Add		Sub.		Sub.		Add.		Add.		Sub.		Sub.		Sub.		Sub.	
	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.
1	3	35	13	52	12	36	3	55	3	5	2	33	3	25	5	58	0	12	10	23	16	15	10	37
2	4	4	14	1	12	24	3	37	3	13	2	24	3	37	5	54	0	31	10	41	16	16	10	14
3	4	32	14	8	12	11	3	19	3	19	2	14	3	48	5	50	0	51	11	00	16	16	9	51
4	5	0	14	14	11	58	3	1	3	25	2	5	3	59	5	45	1	10	11	18	16	15	9	26
5	5	27	14	20	11	44	2	44	3	31	1	54	4	9	5	39	1	30	11	36	16	14	9	2
6	5	54	14	25	11	30	2	26	3	36	1	44	4	19	5	33	1	50	11	54	16	11	8	36
7	6	21	14	29	11	15	2	9	3	41	1	33	4	29	5	26	2	10	12	11	16	8	8	10
8	6	47	14	32	11	00	1	51	3	45	1	22	4	39	5	19	2	30	12	28	16	4	7	44
9	7	13	14	34	10	45	1	34	3	48	1	11	4	48	5	10	2	51	12	44	15	59	7	17
10	7	38	14	36	10	29	1	18	3	51	0	59	4	56	5	2	3	12	13	0	15	53	6	50
11	8	2	14	36	10	30	1	1	3	53	0	47	5	4	4	53	3	32	13	15	15	46	6	22
12	8	26	14	36	9	57	0	45	3	55	0	35	5	12	4	43	3	53	13	30	15	38	5	54
13	8	49	14	35	9	40	0	29	3	56	0	23	5	19	4	32	4	14	13	44	15	30	5	26
14	9	11	14	34	9	23	0	14	3	57	0	10	5	26	4	22	4	35	13	58	15	21	4	57
15	9	33	14	31	9	6	0	2	3	57	0	2	5	32	4	10	4	56	14	11	15	10	4	28
							Sub.				Add													
16	9	54	14	28	8	48	0	16	3	56	0	15	5	38	3	58	5	17	14	24	14	59	3	58
17	10	15	14	24	8	30	0	31	3	55	0	28	5	44	3	46	5	38	14	36	14	47	3	29
18	10	34	14	20	8	13	0	45	3	54	0	40	5	49	3	33	5	59	14	47	14	35	2	59
19	10	54	14	15	7	54	0	59	3	51	0	53	5	53	3	20	6	20	14	58	14	21	2	29
20	11	12	14	9	7	36	1	12	3	48	1	6	5	57	3	6	6	41	15	8	14	6	1	59
21	11	30	14	2	7	18	1	25	3	45	1	19	6	0	2	52	7	2	15	18	13	51	1	29
22	11	46	13	55	7	00	1	37	3	41	1	32	6	3	2	37	7	23	15	26	13	35	0	59
23	12	3	13	47	6	41	1	49	3	46	1	45	6	5	2	22	7	44	15	35	13	18	0	28
24	12	18	13	39	6	23	2	00	3	31	1	58	6	6	2	6	8	4	15	42	13	1	0	2
																							Add	
25	12	33	13	30	6	4	2	11	3	26	2	11	6	8	1	50	8	24	15	49	12	42	0	32
26	12	46	13	20	5	46	2	21	3	20	2	24	6	8	1	34	8	45	15	55	12	23	1	2
27	12	59	13	10	5	27	2	31	3	13	2	37	6	8	1	17	9	5	16	0	12	3	1	31
28	13	12	12	59	5	9	2	40	3	6	2	49	6	7	1	0	9	24	16	5	11	43	2	1
29	13	23	12	48	4	50	2	49	2	58	3	1	6	6	0	42	9	44	16	8	11	22	2	30
30	13	34			4	32	2	58	2	50	3	13	6	4	0	24	10	3	16	12	10	0	2	59
31	13	44			4	13			2	42			6	1	0	6			16	14			3	28

544. *Auxiliary Table, for finding the Equation of Time when the Sun is on the Meridian of Greenwich, on any day from the year* 1824 *till the year* 1900.

Leap Yrs.	1824	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	1900
Daily change of the Equation of Time.	Sec.	Sec.	Sec	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.	Sec.
5	0	0	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3
10	0	0	1	1	1	2	2	2	2	3	3	3	4	4	4	5	5	6	6	6
20	0	1	1	2	2	3	4	4	5	6	6	7	7	8	9	9	10	10	11	11
30	0	1	2	3	4	5	6	6	7	8	9	10	11	12	13	14	15	15	16	16

Add the Seconds from this Table, when the Equation on the corresponding day is *increasing*.
Subtract . . . . . *decreasing*.

Use of the preceding Tables.

545. Take from the first table the equation of time for the given day in the year 1824, and the daily difference of the equation, with this difference, or the nearest second to it in the side column of the Auxiliary Table, and below the leap year preceding the given year, will be found a correction, which applied to the equation before taken from the first Table, will give the equation on the given day of the leap year preceding the given year.

546. Then take $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$, of the daily difference of the equation of time, according as the given year is the 1st, 2d, or 3d after leap year, and add it to the previously found equation on the same day of the preceding leap year, when that equation is decreasing; but subtract it when increasing; and the sum or remainder will be the equation at noon, Greenwich time, of the given day.

547. If the day proposed is in leap year, the correction for that year in the Auxiliary Table, applied to the equation of time on the proposed day in 1824, will give the required equation.

Example.—Required the equation of time, Sept. 12, 1867, at noon, Greenwich time?

548. Equation, see the first table, 3 min. 53 sec. subtractive; daily difference 21 sec. nearly. In table 2, opposite 20 sec. and below 1864, stands 6 sec.; which, added to 3 min. 53 sec., gives 3 min. 59 sec. the equation of time on Sept. 12, 1864. Now, 1867 is the third year after leap year; therefore, take $\frac{3}{4}$ of 21 sec. or 15 sec. and as the declination is increasing, subtract it from 3 min. 59 sec.; and the remainder 3 min. 44 sec. is the required equation at Greenwich noon of the given day, at noon.

549. By means of the following tables and rules, the sun's declination also, at noon, Greenwich time, may be found for any day in the present century, to within a few seconds.

TABLE I.

550. *The Sun's Declination at Noon, Greenwich time, for every Day in the Year* 1824.

Days.	January.	February.	March.	April.	May.	June.
	South.	South.	South.	North.	North.	North.
1	23° 4′ 43″	17° 18′ 20″	7° 28′ 50″	4° 38′ 14″	15° 8′ 49″	22° 5′ 42″
2	22 59 51	17 1 18	7 5 57	5 1 19	15 26 47	22 13 37
3	22 54 30	16 43 58	6 42 58	5 24 18	15 44 30	22 21 8
4	22 48 43	16 26 20	6 19 54	5 47 12	16 1 58	22 28 15
5	22 42 28	16 8 26	5 56 45	6 9 59	16 19 9	22 34 59
6	22 35 46	15 50 16	5 33 31	6 32 40	16 36 5	22 41 19
7	22 28 37	15 31 49	5 10 12	6 55 14	16 52 43	22 47 16
8	22 21 2	15 13 6	4 46 50	7 17 41	17 9 5	22 52 48
9	22 13 1	14 54 8	4 23 24	7 40 0	17 25 10	22 57 57
10	22 4 33	14 34 55	3 59 55	8 2 12	17 40 57	23 2 41
11	21 55 40	14 15 28	3 36 23	8 24 15	17 56 26	23 7 1
12	21 46 21	13 55 47	3 12 49	8 46 10	18 11 38	23 10 56
13	21 36 36	13 35 52	2 49 13	9 7 57	18 26 31	23 14 27
14	21 26 27	13 12 43	2 25 35	9 29 34	18 41 5	23 17 34
15	21 15 53	12 55 22	2 1 56	9 51 1	18 55 21	23 20 16
16	21 4 54	12 34 49	1 38 15	10 12 20	19 9 18	23 22 33
17	20 53 32	12 14 3	1 14 34	10 33 28	19 22 55	23 24 26
18	20 41 45	11 53 6	0 50 52	10 54 26	19 36 13	23 25 53
19	20 29 35	11 31 57	0 27 11	11 15 13	19 49 11	23 26 57
20	20 17 2	11 10 37	0 3 29 S	11 35 49	20 1 49	23 27 35
21	20 4 5	10 49 7	0 20 12 N	11 56 14	20 14 6	23 27 48
22	19 50 47	10 27 27	0 43 51	12 16 27	20 26 3	23 27 37
23	19 37 6	10 5 37	1 7 30	12 36 29	20 37 39	23 27 1
24	19 23 3	9 43 37	1 31 6	12 56 18	20 48 54	23 26 0
25	19 18 39	9 21 29	1 54 41	13 15 54	20 59 47	23 24 34
26	18 53 53	8 59 13	2 18 13	13 35 18	21 10 19	23 22 43
27	18 38 47	8 36 48	2 41 43	13 54 28	21 20 29	23 20 28
28	18 23 21	8 14 16	3 5 9	14 13 25	21 30 17	23 17 48
29	18 7 34	7 51 36	3 28 31	14 32 7	21 39 42	23 14 44
30	17 51 28		3 51 50	14 50 35	21 48 45	23 11 15
31	17 35 3		4 15 5		21 51 21	

TABLE I.—*(Continued).*

Days.	July.			August.			September.			October.			November.			December.		
	North.			North.			North.			South.			South.			South.		
1	23°	7′	22″	18°	0′	0″	8°	13′	41″	3°	16	6″	14°	31′	21″	21°	52′	6″
2	23	3	4	17	44	41	7	51	48	3	39	24	14	50	26	22	1	7
3	22	58	23	17	29	5	7	29	48	4	2	39	15	9	17	22	9	43
4	22	53	17	17	13	12	7	7	40	4	25	52	15	27	53	22	17	53
5	22	47	28	16	57	2	6	45	25	4	49	1	15	46	13	22	25	36
6	22	41	55	16	40	36	6	23	3	5	12	7	16	4	18	22	32	54
7	22	35	38	16	23	54	6	0	35	5	35	9	16	22	7	22	39	45
8	22	28	58	16	6	56	5	38	2	5	58	6	16	39	39	22	46	10
9	22	21	54	15	49	43	5	15	22	6	20	59	16	56	54	22	52	7
10	22	14	28	15	32	14	4	52	38	6	43	46	17	13	52	22	57	38
11	22	6	38	15	14	31	4	29	48	7	6	29	17	30	32	23	2	41
12	21	58	26	14	56	32	4	6	53	7	29	5	17	46	54	23	7	17
13	21	49	51	14	38	19	3	43	54	7	51	36	18	2	58	23	11	25
14	21	40	53	14	19	53	3	20	51	8	14	0	18	18	43	23	15	6
15	21	31	54	14	1	12	2	57	44	8	36	18	18	34	9	23	18	19
16	21	21	52	13	42	18	2	34	33	8	58	28	18	49	15	23	21	3
17	21	11	49	13	23	11	2	11	19	9	20	31	19	4	1	23	23	20
18	21	1	24	13	3	51	1	48	3	9	42	25	19	18	26	23	25	9
19	20	50	37	12	44	18	1	24	44	10	4	12	19	32	31	23	26	29
20	20	39	29	12	24	33	1	1	22	10	25	49	19	46	15	23	27	21
21	20	28	1	12	4	36	0	37	59	10	47	17	19	59	36	23	27	45
22	20	16	11	11	44	28	0	14	35 N	11	8	36	20	12	36	23	27	40
23	20	4	2	11	24	8	0	8	50 S	11	29	45	20	25	14	23	27	7
24	19	51	32	11	3	37	0	32	16	11	50	43	20	37	28	23	26	6
25	19	38	42	10	42	56	0	55	43	12	11	30	20	49	20	23	24	36
26	19	25	32	10	22	5	1	19	0	12	32	6	21	0	48	23	22	38
27	19	12	4	10	1	3	1	42	35	12	52	31	21	11	53	23	20	12
28	18	58	16	9	39	53	2	6	0	13	12	43	21	22	33	23	17	17
29	18	44	9	9	18	33	2	29	24	13	32	42	21	32	49	23	13	55
30	18	29	44	8	57	4	2	52	46	13	52	29	21	42	40	23	10	5
31	18	15	1	8	35	27				14	12	2				23	5	47

551. TABLE II.

To reduce the Sun's Declination from Table I, to the Noon of any Day, Greenwich Time, till the Year 1900.

Periods of 4 Yrs.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Leap Yrs. 1824	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	1900
Daily Diff. of Sun's Declin.	Correction. Subtraction.																		
1′	0″	2″	4″	6″	8″	10″	12″	14″	16″	18″	20″	22″	24″	26″	28″	30″	32″	34″	36″	38″
7	0	2	4	6	7	9	11	13	15	17	19	21	24	26	27	29	31	33	35	37
13	0	1	3	4	5	6	8	10	11	12	14	16	18	20	21	23	24	26	27	28
19	0	1	2	3	5	6	7	9	10	11	12	13	14	15	17	18	19	20	21	22
21	0	1	2	2	3	4	5	6	6	7	8	9	10	11	12	13	14	15	15	16
23	0	0	1	1	1	2	2	3	3	3	4	4	4	5	5	6	6	6	6	7

USE OF THE PRECEDING TABLES.

552. To find the sun's declination on any day. Take from table I. the declination for the noon of the corresponding day in the year 1824, and the daily change of the declination. Opposite that daily change, in table II. and below the leap-year preceding the given one, will be found the first correction of the declination.

553. Multiply the seconds in the daily changes of declination, by the period of four years in table II. and parts of a period from 1824, to the given year, and the product multiplied by ·0308 will give the seconds, in the second correction of the declination.

554. Lastly, take $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$, of the daily change of declination, according as the year is the first, second, or third after leap-year, and the result will be the third correction of the declination.

555. Subtract the first correction from the declination on the corresponding day of 1824, add the second correction, when the declination is increasing, and subtract it when decreasing; and apply the third in a manner contrary to the second, and the result will be the declination at noon, Greenwich time, of the proposed day.—*Note.*—If the given year be leap-year, the third correction is nothing.

Example.—Required the sun's declination at noon, Greenwich time, Oct. 18, 1875?

556. By table I. the sun's declination on Oct. 18, 1824, is 9° 42′ 25″ S., and daily change 21′ 47″, increasing. Now the leap-year preceding the given one, is 1872, below which, in table II. and opposite 22′ (the nearest minute to the daily change) stands 7″, the first correction. As the given year is the third after leap-year, and there are (see table II.) 12 periods of 4 years from 1824 to 1872, there are $12\frac{3}{4}$ periods from 1824 to 1875. Hence, $12\frac{3}{4} \times$ ·0308 × 1307″ (21′ 47″) = 513″ = 8·33′, the second correction, addition, because the declination is increasing. As the given year is the third after leap-year, we have $\frac{3}{4}$ of 21′ 47″ = 16′ 19″, the third correction, subtraction, because the second is addition. Hence, the declination at the proposed time, is 9° 42′ 25″ —7″ + 8′ 33″—16′ 19″ = 9° 34′ 34″.

557. As immediately connected with this subject, we add a table of the sun's right ascension for the year 1824, with a method of adapting it to any subsequent instant in the present century, with sufficient exactness for ordinary purposes.

558. *Table of the Sun's Right Ascension, at Noon, Greenwich Time, for every Day in the Year* 1824.

Days.	January.			February.			March.			April.			May.			June.		
	H.	M.	S.	H.	M.	S.	H.	M.	S.	H.	M.	S.	H.	M.	S.	H.	M.	S.
1	18	43	58	20	56	30	22	49	34	0	43	5	2	34	20	4	37	5
2	18	48	24	21	0	35	22	53	18	0	46	43	2	38	9	4	41	11
3	18	52	48	21	4	39	22	57	2	0	50	22	2	41	59	4	45	17
4	18	57	13	21	8	42	23	0	45	0	54	0	2	45	49	4	49	24
5	19	1	37	21	12	44	23	4	28	0	57	39	2	49	40	4	53	31
6	19	6	1	21	16	46	23	8	11	1	1	18	2	53	32	4	57	38
7	19	10	24	21	20	46	23	11	52	1	4	57	2	57	24	5	1	45
8	19	14	47	21	24	46	23	15	34	1	8	37	3	1	16	5	5	53
9	19	19	9	21	28	45	23	19	15	1	12	16	3	5	9	5	10	1
10	19	23	30	21	32	43	23	22	56	1	15	56	3	9	3	5	14	9
11	19	27	51	21	36	40	23	26	36	1	19	36	3	12	57	5	18	17
12	19	32	12	21	40	37	23	30	16	1	23	16	3	16	52	5	22	26
13	19	36	31	21	44	32	23	33	56	1	26	57	3	20	48	5	26	35
14	19	40	50	21	48	27	23	37	36	1	30	38	3	24	43	5	30	44
15	19	45	9	21	52	21	23	41	15	1	34	19	3	28	40	5	34	53
16	19	49	27	21	56	15	23	44	54	1	38	1	3	32	37	5	39	2
17	19	53	44	22	0	7	23	48	33	1	41	43	3	36	35	5	43	11
18	19	58	0	22	3	59	23	52	11	1	45	25	3	40	33	5	47	21
19	20	2	16	22	7	51	23	55	50	1	49	8	3	44	32	5	51	30
20	20	6	31	22	11	41	23	59	28	1	52	52	3	48	31	5	55	40
21	20	10	45	22	15	31	0	3	6	1	56	35	3	52	31	5	59	50
22	20	14	59	22	19	21	0	6	44	2	0	20	3	56	32	6	3	59
23	20	19	11	22	23	9	0	10	22	2	4	4	4	0	33	6	8	9
24	20	23	23	22	26	57	0	14	0	2	7	49	4	4	35	6	12	18
25	20	27	34	22	30	45	0	17	38	2	11	35	4	8	37	6	16	28
26	20	31	45	22	34	32	0	21	16	2	15	21	4	12	39	6	20	37
27	20	35	55	22	38	18	0	24	54	2	19	8	4	16	43	6	24	46
28	20	40	3	22	42	4	0	28	32	2	22	55	4	20	46	6	28	55
29	20	44	11	22	45	49	0	32	10	2	26	43	4	24	50	6	33	14
30	20	48	19				0	35	48	2	30	31	4	28	55	6	37	13
31	20	52	25				0	39	27				4	33	0			

Table of Sun's Right Ascension—(Continued).

Days.	July.			August.			September.			October.			November.			December.		
	H.	M.	S.	H.	M.	S.	H.	M.	S.	H.	M.	S.	H.	M.	S.	H.	M.	S.
1	6	41	21	8	46	8	10	42	10	12	30	14	14	26	34	16	30	29
2	6	45	29	8	50	1	10	45	47	12	33	52	14	30	30	16	34	49
3	6	49	37	8	53	53	10	49	25	12	37	30	14	34	26	16	39	9
4	6	53	45	8	57	44	10	53	2	12	41	8	14	38	24	16	43	30
5	6	57	52	9	1	33	10	56	38	12	44	47	14	42	28	16	47	52
6	7	1	58	9	5	25	11	0	15	12	48	26	14	46	21	16	52	14
7	7	6	5	9	9	15	11	3	51	12	52	5	14	50	21	16	66	36
8	7	10	11	9	13	4	11	7	27	12	55	45	14	54	22	17	0	39
9	7	14	16	9	16	53	11	11	3	12	59	25	14	58	23	17	5	23
10	7	18	22	9	20	40	11	14	39	13	3	6	15	2	26	17	9	47
11	7	22	26	9	24	28	11	18	15	13	6	47	15	6	29	17	14	11
12	7	26	31	9	28	14	11	21	50	13	10	29	15	10	33	17	18	36
13	7	30	34	9	32	1	11	25	26	13	14	11	15	14	38	17	23	1
14	7	34	38	9	35	46	11	29	1	13	17	54	15	18	44	17	27	26
15	7	38	41	9	39	32	11	32	37	13	21	37	15	22	51	17	31	58
16	7	42	43	9	43	16	11	36	12	13	25	21	15	26	58	17	36	18
17	7	46	45	9	47	0	11	39	48	13	29	5	15	31	7	17	40	44
18	7	50	47	9	50	44	11	43	23	13	32	50	15	35	16	17	45	11
19	7	54	47	9	54	27	11	46	59	13	36	36	15	39	27	17	49	37
20	7	58	48	9	58	10	11	50	34	13	40	23	15	43	38	17	54	4
21	8	2	48	10	1	52	11	54	10	13	44	10	15	47	50	17	58	31
22	8	6	47	10	5	34	11	57	46	13	47	57	15	52	2	18	2	58
23	8	10	46	10	9	15	12	1	21	13	51	46	15	56	16	18	7	24
24	8	14	44	10	12	56	12	4	57	13	55	35	16	0	30	18	11	51
25	8	18	42	10	16	37	12	8	34	13	59	25	16	4	45	18	16	18
26	8	22	39	10	20	17	12	12	16	14	3	15	16	9	1	18	20	44
27	8	26	35	10	23	57	12	15	46	14	7	6	16	13	17	18	25	11
28	8	30	31	10	27	36	12	19	23	14	10	58	16	17	34	18	29	37
29	8	34	26	10	31	15	12	23	0	14	14	51	16	21	52	18	34	3
30	8	38	21	10	34	53	12	26	37	14	18	45	16	26	10	18	38	29
31	8	42	15	11	38	32				14	22	39				18	42	54

559. To find the sun's higher ascension at the noon of any day, Greenwich time, till the year 1900.

Take the right ascension for the corresponding day of the year 1824 from the above table, and multiply 7·3s. by the periods of four years, and parts of a period from 1824 till the given period, and the product will be the period in the first correction, always to be added. Take ¼, ½, or ¾ of the daily change of right ascension, according as the given year is the first, second, or third after leap-year; for the second correction always to be subtracted. Apply these corrections to the right ascension taken for the corresponding day of 1824, and the result will be the right ascension at the Greenwich noon of the proposed day.

Note.—If the given year is a leap-year, the second correction is nothing.

EXAMPLE.

Required the sun's right ascension, May 4, 1853.

560. The sun's right ascension, May 4, 1824, is 2h. 45m. 49s. and daily increase 3m. 51s. Now there are 7¼ periods of four years from 1824 till 1853; when 7·3s. × 7¼ = 53s. the first correction; and ¼h. of 3m. 51s. in 58s., the second correction. Then 2h. 48m. 55d. × 53s. —58s. = 2h. 45m. 40s. the right ascension at the proposed time.

SECT. III.—OF CALCULATING THE DISTANCES, MAGNITUDES, &c. OF THE CELESTIAL BODIES.

561. One of the first objects of an observer is to ascertain the latitude of his place of observation. There are many methods by which this may be effected. If the declination δ of any celestial object be known, and its distance z from the zenith be observed, then the latitude l will be either $= \overline{\delta + z}$, or $\overline{\delta - z}$, according as δ and z are of the same or different denominations. But the latitude may be determined from altitudes of circumpolar stars, independently of any previous knowledge of the places of those stars, for it is always equal to half the sum of their greatest and least altitudes. The pole star is most conveniently situated for observations of this kind, and it is generally observed for that purpose.

562. Considerable attention has been paid to the simplification of the method by which the latitude may be found from altitudes of this star when it is out of the meridian. Mr. F. Bailey, the present learned president of the Astronomical Society of London, has given the following formula, in which ψ is the colatitude, p the star's

polar distance, and t its meridian distance, and z its observed zenith distance, $\psi = z - \frac{p^2}{2} m^2 t.\cot. z + p \cos. t + \frac{p^3}{3} s \sin^2 t \cos. t$. This formula may be put under the form $\psi = z + (p + C) \cos. t - B \cot. z$; whence, the coefficients $p + C$ and B being computed and arranged in tables, ψ may easily be determined.

563. The latitude being determined, it becomes next of importance to determine the inclination of the plane of the earth's orbit to the plane of the equator, or the obliquity of the ecliptic. This is the difference between the sun's greatest altitude and the colatitude of the plan of observation. If the sun was in the solstice at the moment at which he was on the meridian, the difference between his meridian altitude and the colatitude, would be the obliquity. This, however, is unlikely to happen, and, on the ground of utility, not at all to be desired; as, from meridional observations made near the solstice, the obliquity may be determined with a degree of accuracy to which no single observation could justify us in pretending.

564. If w be the obliquity, d the sun's declination, and $\odot$ his longitude, d' the greatest declination, and $\odot'$ the corresponding longitude; then,

$$\sin. d = \sin. \odot . \sin. w$$
$$\sin. d' = \sin. \odot' . \sin. w.$$

When $\sin. d' - \sin. d = \sin. w (\sin. 90° - \sin. \odot)$ Or, if $w = 90° - \odot$ and $w (= d') = d + \delta$, $\sin. \frac{\delta}{2} \cos. (w - \frac{\delta}{2}) = \sin. w. \sin.^2 \frac{u}{2}$. And expanding and substituting for $m \frac{\delta}{2}$ and $\cos. \frac{\delta}{2}$ their approximate values in terms of δ, we obtain

$$\delta = \frac{\tan. w. \sin. s'. u^2}{2}$$

from which, with the greatest ease, the correction of the declination d deduced from the altitude may be obtained, and hence from a series of meridional altitudes, observed on each side of the solstice, the obliquity of the ecliptic may be obtained to a very great degree of nicety.

565. The obliquity of the ecliptic being obtained, the next step in this department of enquiry is to ascertain the place of the equinoctial point, or that point on the ecliptic in which it crosses the equator. Now the point in which the sun is when his meridional altitude is equal to the colatitude, will be the equinoctial point. Let a = his meridional altitude less than the colatitude l, a' = his meridional altitude greater than l, and n = the days between the two observations, then as near the equinox a may be considered as varying uniformly, we have $\frac{a - l, n}{a' - a} =$ the time after the sun had the altitude a when he was on the equator, whence his place at the time on the portion of the equinoctial point, with reference to the meridian of any known fixed star may be determined.

566. The distances of the heavenly bodies are obtained by finding the horizontal parallax of the body whose distance is desired to be known; that is, the angle under which the semidiameter of the earth would appear provided we could see it from that body. In general the parallax of a planet is the difference between the real and apparent place of a planet; that is, between its place seen from some part of the surface, and from the centre of the earth; so that the parallax is the angle under which the semidiameter of the earth, terminated by the place of an observer, is seen at the planet; and to find this parallax many methods have been devised.

567. I. Let A D, plate V. fig. 3, be the earth, C its centre, P the planet; and let the planet's distance C P from the centre of the earth be given. Then Z A P is the complement of the apparent altitude, Z C P the complement of the true altitude. As the planet's distance from the centre of the earth C P: to the earth's radius AC:: so is the cosine of the apparent altitude, S.Z A P: to the sine of the parallax. For draw A F parallel to C P. The angle F A P is equal to the angle A P C. But Z A F is equal to Z C P, the true zenith distance, and Z A P is the apparent zenith distance; and their difference F A P, or its equal A P C, is the parallax. But in the triangle C A P, it is C P: S.C A P or Z A P:: C A: S.C P A, or P A F, the parallax.

568. II. If the distances of two planets or stars, having the same apparent altitude, be known, and the parallax of one of them, let P and G be the planets in the line A P G; then A P C is the parallax of P, and A G C the parallax of G. Therefore in the triangle C P C, we have C P, C G, and an angle opposite, suppose G, to find the other opposite angle. Therefore distance C P: distance C G:: S C G P: S C P G or C P A; that is, the sines of the parallaxes are reciprocally as the distances from the earth's centre.

569. III. Let S be the star or planet whose parallax is sought. See plate V. fig. 7. Observe it when it is in the same vertical circle with any two fixed stars, A, B. Observe again when the same two stars come into a position parallel to the horizon at a and b; and let the planet be come to s. Then with an instrument measure the altitude of a or b, and likewise the altitude of s; and the difference of these altitudes is the parallax. For the real place of the star S, is somewhere in the line A B, and therefore it is also somewhere in the line a b, and therefore its altitude is the same as that of a or b. Therefore the parallax is the difference of the altitudes of a and s, or of b and s.

570. IV. Let S be the star or planet; observe its distance from any fixed star B, which is in the same vertical circle Z S B; and measure the distance S B with an instrument. Then observe again when the same two stars have equal altitudes above the horizon at b and s, and then take the distance b s, This distance will be very near the true distance of the stars B and S; therefore the first distance B S subtracted from the latter distance b s, when B is below S, gives the parallax; or the latter distance subtracted from the former, when B is above S, gives the parallax.

571. V. The parallax may be found by observing the azimuth and altitude of the star or planet. Let H Z O, plate V. fig. 4, be the meridian, E Q the equinoctial, H O the horizon, Z the zenith, P the pole, S the star, Z S B a vertical circle pass-

ing through it. Observe the altitude B S, and the azimuth B O, and mark the moment of time when these observations are made; then observe the moment of time that the star comes to the meridian, and you then have the distance of time from the observations. Convert this into degrees, allowing only 23h. 56m. to 360°, (which is the time of the earth's rotation to the same star), and you have the arch E D or angle E P A, supposing P A D an hour circle. Therefore in the spherical triangle Z P A, we have the angle Z P A, and angle P Z A equal to B O, and the side Z P the co-latitude, to find the side Z A the complement of the altitude; this subtracted from Z S, known by observation, the remainder A S is the parallax.

572. VI. Another method is performed by a telescope, with cross hairs in the focus. Direct the telescope to the planet, and turn it round till its motion is along one of the cross hairs, which represents part of the planet's parallel circle; and the other hair perpendicular to it, will represent its hour circle. Observe the time when the planet comes to this hour circle, there fix the telescope, and then take its altitude; then observe the time when some fixed star, whose right ascension is known, comes to the same hour circle. The difference of time between the planet and star coming to this hour circle, turned into degrees (allowing 360° to 23h. 56m.), gives the difference of right ascensions of the planet and star; and so the apparent right ascension of the planet is known.

573. When the planet comes to the meridian, observe it with the telescope, and note the time; and when the star comes to the meridian, note the time of that: then the difference of the times reduced to degrees as before, gives the true difference of right ascensions, whence the true right ascension of the planet will be known. Therefore let H O, plate V. fig. 8, be the horizon, H Z O the meridian, Z the zenith, P the pole, A the true place of the planet, S its apparent place, Z S B a vertical circle; then in the triangle Z P S, we have Z P, Z S, and angle Z P S to find the angle P Z S. In the triangle Z P A, we have Z P, angles Z P A, P Z A; to find Z A, which taken from Z S, gives A S the parallax.

574. If the planet have a proper motion of its own, its true place will be always changing; and therefore the change of place must be computed for the time of the observations. This is done by observing its place when in the meridian, twice; and thence the change of place is had for 24 hours: and therefore the place at the times of observations will be had by proportioning the motion according to the times. Here the angle Z P S should be about 90°, to have A P S the greatest possible.

575. VII. The operation represented in plate V. fig. 5, requires two observers in different places of the earth, and can be applied to none of the planets but Mars in opposition to the sun, or to Venus on the sun's disk. It is best performed when the sun is about the equinox. Let P E R Q be the earth, P R its axis, E Q the equinoctial, S the planet Mars in opposition to the sun, and if near the perihelion, it is better. Let two places F G, be taken, the one in north latitude, the other in south latitude, the further from the equinoctial the better; and nearly in the same meridian, or rather so placed, that the line F G, drawn from the one to the other, may be nearly perpendicular to the orbit of Mars. By this there is a greater base to work upon. Then let the two observers pitch upon some fixed star as A, which Mars comes very near at that time; and the nearer the better. Having two good instruments perfectly alike, furnished with micrometers, and being situated at F and G; let them observe for several nights successively about midnight, the places of Mars at B and C, as he passes by the star A; and take the distances A B and A C every night, during his transit by this star. These observations are to be continued till the distances begin to increase, and no longer; for then he is past the star.

576. From these observations, the nearest distance of Mars from the star A may be found, as observed from the places F and G; at least they may be found by interpolation. Let these nearest distances be A B and A C; then we have the difference B C, or the angle B S C or F S G. And from the situation of the places F and G, the length and position of F G will be known; and by these F S may be found. And lastly, the angle which the radius of the earth subtends at the distance F S, or the horizontal parallax of Mars will be known. If, instead of Mars in opposition, Venus be observed on the body of the sun; then her nearest distances from either limb of the sun must be taken, whose difference will give the angle at Venus, subtended by F G; the rest as before. Thus the parallax of Venus will be obtained. The parallax of Mars, when nearest the earth, has been found 25″, 27″, and 30″ at different times.

577. Besides these methods of computing the parallax, there is another depending on observations made out of the meridian, which may be thus explained: let M, plate IV. fig. 5, be the true place, and m the apparent place of a planet, Z the zenith, and P the pole, then M P m will represent the apparent change in the right ascension of the planet arising from parallax. This change may be thus estimated: make P n = P M, and join M n, M P n = M n cosect M P = M m sin. Z M P cosect P M = A sin. Z M. sin. Z M P cosect P M (A representing the horizontal parallax) = A sin. Z P sin. Z P M cosect P M.

$$\text{Hence } A = \frac{M P n}{\text{sin. } Z P \cdot \text{sin. } Z P M \cdot \text{cosect } P M} = \frac{M P n \text{ cos. declin.}}{\text{cos. lat. sin. hour angle}}.$$

$$\text{Or, calling } M P m, \epsilon, A = \frac{\epsilon \text{ cos. declin.}}{\text{cos. lat. sin hour angle.}}$$

We should have a similar expression for it, if the object were observed on the other side of the meridian, and therefore

$$A = \frac{\epsilon \text{ cos. declin.}}{\text{cos. lat.} \times (\text{sin. } h + \text{sin. } h')} = \frac{\epsilon \text{ cos. declin.}}{2 \text{ cos. lat. sin. } \frac{h + h'}{2} \text{ cos. } \frac{h - h}{2}}$$

This method serves tolerably well to find the parallax of the moon; and it has been applied successfully to find the parallax of Mars; but it requires observations of much too great nicety to determine by it the parallaxes of the two planets. Those are chiefly deduced from the parallax of the sun, as determined by the transit of Venus.

578. In the above investigations, the earth has been considered as a spherical body; but in computing the parallax of the moon, from observations, the peculiarity of the form of the earth becomes very apparent; and it is a striking circumstance that from the eclipses of the moon, we shew in a general way that the earth is round, and from her parallaxes that it is not spherical.

579. A star or planet appears lower than it really is, by the quantity of the parallax, which is greater the lower the star is; and therefore the horizontal parallax is the greatest. The parallaxes of two planets are as the cosines of the apparent altitudes directly, and their distances from the earth's centre reciprocally. For when the distance is given, the parallax is as the sine of the zenith distance (by method 1), and if the apparent altitude be given, the parallax is reciprocally as the distance, (by method 2), and therefore is in a compound ratio, when neither is given. Here the parallax being very small, one may take the parallax itself for the sine of the parallax.

580. The parallax of a planet being known, its distance may be found. For this is only working backward, saying, as sine of the parallax, to the earth's radius; so S zenith distance to the planet's distance.

581. Having the parallax of any of the planets, the distances of all the planets from the sun may be known, in diameters of the earth, or any sort of measure. For the distances of the planets from the sun and from one another, are known in some assumed measure; and by the parallax of a planet, the true distance of the earth from it is known; and therefore all the other distances will be known by proportion.

582. The seventh of these methods has been practised in determining the parallax of Venus, from observations made at different parts of the earth, upon what is called her transit over the sun's disk, a phenomenon that rarely happens: but when it does happen, it affords the best, and indeed the only accurate method of determining that most important problem in astronomy, the sun's parallax, or the angle under which the earth's semi-diameter appears from the sun.

583. The first transit or passage of Venus over the sun's disk, that ever was observed, happened in 1639, but perhaps the only mortals who saw it were Mr. Horrox and his friend Mr. Crabtree. Two transits have happened since; the first in 1761, and the last in 1769. There will be no more before 1874, and the next to that will happen in 1996. The two last transits were carefully observed. From the first of these Mr. Short has computed the sun's parallax to be 8·6″; and from the last the best astronomers have concluded it to be 8·6″. This is an observation of the greatest consequence, because it is only by a knowledge of the sun's distance from the earth, in some known measure, that we can acquire a knowledge of the true dimensions of the solar system. For an account of the principles of this method of finding the solar parallax, see VENUS, transit of.

584. As to the fixed stars, no method of ascertaining their distance has hitherto been found out. Those who have formed conjectures concerning them, have thought that they were at least 400,000 times farther from us than we are from the sun.

585. Dr. Herschel has proposed a method of ascertaining the parallax of the fixed stars, something similar, but more complete, than that mentioned by Galileo and others; for it is by the parallax of the fixed stars that we should be best able to determine their distance. The method pointed out by Galileo, and first attempted by Hooke, Flamsteed, Molineux, and Bradley, of taking the distances of stars from the zenith that pass very near it, has given us a much juster idea of the immense distance of the stars, and furnished us with an approximation to the knowledge of their parallax, that is much nearer the truth than we ever had before.

586. But Herschel mentions the insufficiency of their instruments, which were similar to the present zenith sectors, the method of zenith distances being liable to considerable errors on account of refraction, the change of position of the earth's axis arising from nutation, precession of the equinoxes, and other causes, and the aberration of light. The method of his own is by means of double stars; which is exempted from these errors, and of such a nature that the annual parallax, even if it should not exceed the tenth part of a second, may still become more visible, and be ascertained, at least to a much greater degree of approximation than it has ever been done.

587. This method is capable of every improvement which the telescope and mechanism of micrometers can furnish; but as it goes on presumptions which can hardly lead to any firm conviction, we are not likely to gain any farther knowledge, than that the stars are at too great distance to be subjected as yet to our calculations. He supposes that the stars are, one with another, about the size of the sun; and that the difference of their apparent magnitudes is owing to their apparent distances; both of which suppositions being only hypothetical, it is evident that the conclusions founded on them cannot be depended on with absolute certainty.

588. Considerable discussion has recently taken place between Mr. Pond, the present astronomer royal, and Dr. Brinkley, respecting the annual parallax of α Lyræ, which parallax Dr. B. conceives his instrument shews clearly to be about 1·12″. Mr. Pond, asserts, that the Greenwich circle is a better instrument than the Dublin circle, and that observations made with it give no indications of parallax either in α Lyræ, or in any other fixed star. Dr. Brinkley, however, has endeavoured to shew that, if the place of the pole-star can be relied on, the Greenwich observations do indicate a parallax in α Lyræ very nearly equal to that shewn by his instrument; but Mr. Pond, in a recent communication to the astronomical society of London, states, that observations on the pole-star are on the whole more unsatisfactory than any other star. What

seems to go far towards settling this delicate question is, that there are now two circles in constant use at Greenwich; and that they agree together in a manner that must be gratifying to their distinguished makers, Mr. Troughton and Mr. Thomas Jones; they bear steady and united testimony against the parallax of the fixed stars, and shew even in some instances a tendency to exhibit a deviation of an opposite character.

Sect. IV.—Of the Divisions of the Starry Heavens.

589. The stars, from their apparently various magnitudes, have been distributed into several classes, or orders. Those which appear largest, are called stars of the first magnitude; the next to them in lustre, stars of the second magnitude; and so on to the sixth, which are the smallest that are visible to the bare eye. This distribution having been made long before the invention of telescopes, the stars which cannot be seen without the assistance of these instruments, are distinguished by the name of telescopic stars.

590. The ancients divided the starry sphere into particular constellations, or clusters of stars, according as they lay near one another, so as to occupy those spaces which the figures of different sorts of animals or things would take up, if they were there delineated. And those stars which could not be brought into any particular constellation, were called unformed stars.

591. By this division, the stars are so distinguished from one another, that any particular star may be readily found in the heavens, by means of a celestial globe; on which the constellations are so delineated, that the most remarkable stars are placed in such parts of the figures, as are most easily distinguished. See plates I, and II.

592. The number of the ancient constellations is forty-eight, and upon our present globes about seventy. On Senex's globes are inserted Bayer's letters; the first in the Greek alphabet being put to the largest star in each constellation, the second to the next, and so on; by which means every star is as easily found as if a name were given to it. Thus if the star γ in the constellation of the ram be mentioned, every astronomer knows as well what star is meant, as if it were pointed out to him in the heavens.

593. The starry heavens are also divided into three parts, viz. 1. The Zodiac, which extends quite round the heavens; is about 16° broad, so that it takes in the orbits of all the planets, as well as that of the moon; and along the middle of which is the ecliptic. 2. All that region of the heavens which is on the north side of the zodiac, containing twenty-one constellations; and, 3. That on the south side, containing fifteen.

594. The following tables exhibit the names of the ancient and modern constellations, and the number of stars observed in each of them by different astronomers:

595. TABLE I.

THE ANCIENT CONSTELLATIONS.

Names.	English Names.	Number of Stars in Each, according to			
		Ptolemy.	T. Brahe.	Hevelius.	Flamst.
Ursa Minor	The Little Bear	8	7	12	24
Ursa Major	The Great Bear	35	29	73	87
Draco	The Dragon	31	32	40	80
Cepheus	Cepheus	13	4	51	35
Bootes, or Arctophilax		23	18	52	54
Corona Borealis	The Northern Crown	8	8	8	21
Hercules, or Engonasin	Hercules Kneeling	29	28	45	113
Lyra	The Harp	10	11	17	21
Cygnus, or Gallina	The Swan	10	18	47	81
Cassiopeia	The Lady in her Chair	13	26	37	55
Perseus	Perseus	29	29	46	59
Auriga	The Waggoner	14	9	40	66
Serpentarius, or Ophiuchus	Serpentarius	29	15	40	74
Serpens	The Serpent	18	13	22	64
Sagitta	The Arrow	5	5	5	18
Aquila, or Vultur	The Eagle	15	12	23	71
Antinous	Antinous	15	3	19	71
Delphinus	The Dolphin	10	10	14	18
Equulus, or Equi sectio	The Horse's Head	4	4	6	10
Pegasus, or Equus	The Flying Horse	20	19	38	89
Andromeda	Andromeda	23	23	47	66
Triangulum	The Triangle	4	4	12	16
Aries	The Ram	18	21	27	66
Taurus	The Bull	44	43	51	141
Gemini	The Twins	25	25	38	85

TABLE I.—*(Continued).*

Names.	English Names.	Number of Stars in Each, according to Ptolemy.	T. Brahe.	Hevelius.	Flamst.
Cancer	The Crab	23	15	29	83
Leo	The Lion	35	30	49	95
Coma Berenices	Berenice's Hair	35	14	21	43
Virgo	The Virgin	32	33	50	110
Libra, or Chelæ	The Scales	17	10	20	51
Scorpius	The Scorpion	24	10	20	44
Sagittarius	The Archer	31	14	22	69
Capricornus	The Goat	28	28	29	51
Aquarius	The Water-Bearer	45	41	47	108
Pisces	The Fishes	38	36	39	113
Cetus	The Whale	22	21	45	97
Orion	Orion	38	42	62	78
Eridanus, or Fluvius	Eridanus, or the River	34	10	27	84
Lepus	The Hare	12	13	16	19
Canis Major	The Great Dog	29	13	21	31
Canis Minor	The Little Dog	2	2	13	14
Argo Navis	The Ship	45	3	4	64
Hydra	The Hydra	27	19	31	60
Crater	The Cup	7	3	10	31
Corvus	The Crow	7	4		9
Centaurus	The Centaur	37			35
Lupus	The Wolf	19			24
Ara	The Altar	7			9
Corona Australis	The Southern Crown	13			12
Piscis Australis	The Southern Fish	18			24

596. TABLE II.

THE NEW SOUTHERN CONSTELLATIONS.

Columba Noachi	Noah's Dove	10	Apis, or Musca	The Bee or Fly	4
Robur Carolinum	The Royal Oak	12	Chamæleon	The Cameleon	10
Grus	The Crane	13	Triangulum Australis	The South Triangle	5
Phœnix	The Phœnix	13	Piscis volans, or Passer	The Flying Fish	8
Indus	The Indian	12	Dorado, or Xiphias	The Sword Fish	6
Pavo	The Peacock	14	Toucan	The American Goose	9
Apus, or Avis Indica	The Bird of Paradise	11	Hydrus	The Water Snake	10

597. TABLE III.

HEVELIUS'S CONSTELLATIONS MADE OUT OF THE UNFORMED STARS.

		Hevelius.	Flamstead.
Lynx	The Lynx	19	44
Leo Minor	The Little Lion	—	53
Asterion and Chara	The Greyhounds	23	25
Cerberus	Cerberus	4	—
Vulpecula and Anser	The Fox and Goose	27	35
Scutum Sobieski	Sobieski's Shield	7	—
Lacerta	The Lizard	10	16
Camelopardalus	The Camelopard	32	58
Monoceros	The Unicorn	19	32
Sextans	The Sextant	11	41

Sect. V.—Of Calculating the Periodical Times, Places, &c. of the Celestial Bodies; Constructing Astronomical Tables, and Delineating the Phases of the Moon.

598. This section, if treated fully, would comprehend almost the whole of practical astronomy, a subject so extensive, that the whole space which we can devote to the subject of astronomy would not suffice to do it justice. We shall, however, we hope, give an abstract of the leading points in this department of the science, which may at once gratify the wishes of the amateur,

and stimulate the further enquiries of those who may be inclined to pursue the subject.

599. Indeed the elements of the chief bodies in our system have long been tabulated, and the mere practical astronomer may, without any knowledge of the causes of the planetary motions, compute from the tables where any planet in the system will be found at any given instant. The tables in the third volume of Vince's Astronomy are a treasure to the astronomer, though those of the moon have been superseded by the improved ones of Burkhardt.

600. We have already shown how an observer who knows his own latitude may find the position of the ecliptic with respect to the equator, and that point of the heavens in which the celestial equator and the ecliptic intersect. We now proceed to the solution of Kepler's problem, or to the method of finding the place of a planet in an elliptical orbit.

601. Let A P B, fig. 12, plate VI., be an ellipse, E the sun in the focus, round which the earth, P, or any other planet revolves. Let the planet's motion, and the time of its motion, be dated from the extremity of the major onis, A, called the aphelion or apside. Now we are supposed to have given the time of the planet's quitting it, to find the position of the point P in the ellipse, either by finding the value of the angle A E P, or by cutting off from the whole ellipse and area A E P, which is to the area of the whole ellipse as the time from A to P bears to the whole time of revolution. The line E P is called a radius rector.

602. Let a circle A M B be described on A B as its diameter, and suppose a point to describe this circle uniformly, and the whole of it in the same time as the planet describes the ellipse, let t denote the time elapsed during P's motion from A to P; then if A M $\frac{2 . t . \text{A M B}}{\text{periodic time}}$ M will be the place of the point that moves uniformly, whilst P is that of the planets; the angle is called the mean anomaly, and A E P the true anomaly.

603. Hence, as the angle A C M can always be found when t is given, the solution of Kepler's problem is reduced to this, to find the true anomaly in terms of the mean.

604. The angle D C A, determined by producing the ordinate A² P to the ellipse is called the eccentric anomaly, which has been devised for the purpose of expediting the computation of the true anomaly. It holds a mean between the two other anomalies, and is a step in the computation from the one to the other.

605. We shall first deduce two equations, by which the eccentric anomaly is expressed, in terms of the true and mean anomalies respectively.

Let $t =$ the time in describing A P, P $=$ the periodic time in the ellipse $a =$ C A, $a e =$ E C, $v =$ ∠ P E A, $u =$ ∠ D C A, (whence E T $=$ E C. sin. u, E T being perpendicular to D T) $\tau \rho =$ P E, $\pi = 3{\cdot}1415986$; then, by the law of the equable description of areas,

$$t = \text{P} \times \frac{\text{area P E A}}{\text{area of ellipse}} = \text{P} \times \frac{\text{area D E A}}{\text{area } \odot}$$

$$(\text{by conics}) = \frac{\text{P}}{\pi a^2} \times (\text{D E C} + \text{D C A}) = \frac{\text{P}}{\pi a^2} \times \left(\frac{\text{E T . D C}}{2} + \frac{\text{A D . D C}}{2}\right) = \frac{\text{P} a}{2 \pi a^2} \times (\text{E C} \sin u + \text{D C} . u) = \frac{\text{P}}{2 \pi} \times (e . \sin . u + u)$$: hence if we put $\frac{\text{P}}{2 \pi} = \frac{1}{n}$ we have

$n t = e . \sin . u \times u$, an equation connecting the mean anomaly $n t$ with the eccentric u.

606. To find the equation between the true and eccentric anomaly we must investigate and equate two values of ρ. Now the value of ρ in terms of the true anomaly is by conics $=$

$$\frac{a . 1 - e^2}{1 - e . \cos . u .}$$

and in terms of u the eccentric anomaly $\rho = a \overline{1 + e . \cos . u .}$

In $\rho^2 = \text{E N}^2 \times \text{P N}^2 = \text{E N}^2 + \text{D N}^2 \overline{1 - e^2} = \overline{a e + a . \cos . u^2} + a^2 \sin .^2 u \overline{1 - e^2} = a^2 + 2 e \cos . u + \cos . 2 u + a^2 \overline{1 - e^2} \, \text{m}^2 u = a^2 + {}^2 e \cos . u - e^2 \cos^2 u$ when $\rho = a \overline{1 + e . \cos . u .}$

By equating these two values of P we have, $1 - e^2 = \cos u \, 1 + e . \cos u$; whence $\cos . v = \frac{e + \cos u}{1 + e \cos . u}$, an expression which may readily be transformed into $1 \tan \frac{u}{2} \sqrt{\frac{1 - e}{1 - e}} . \tan \frac{u}{2}$

The difference between the mean and true anomalies is called the Equation of the Centre; which has its greatest value when P moves with its mean angular velocity, as may be thus made evident. If we conceive a body to move uniformly in a circle round E, as a centre, with the mean angular velocity of P round E, revolving round the circle in the same time that P revolves round the ellipse. If they both depart from P together, then P at the first moving with its least angular velocity, will describe round E a less angle than the fictitious body does, which body will therefore advance before P, till the angular velocity of P becomes equal to that of the body, at which time their angular distance will be the greatest, and P will immediately afterwards begin to gain upon the body.

608. To determine the ellipse in which the equation of the centre is the greatest, conceive a circle to be described round E as a centre, setting the ellipse on some point P, and the line E A somewhere between E and A. Then, if the angular velocities be inversely as the squares of the distances from E, the angular velocity in the ellipse from A to P, will in every intermediate point be less than the angular velocity of the body in the circle, in all the points between E A and P. But if the areas described by the body in the ellipse, and the body in the circles, be respectively equal, the angular velocities are inversely as the squares of the distances.

609. If then the incremental areas be equal, the whole areas are equal, since by condition, the lines of revolution are equal. Let therefore X be put for the value of E P, $2 a =$ the major axis, and $a e =$ the eccentricity of the ellipse, then by equating the expression for the elliptic area,

and that of the circle we obtain

$$x = a \times \overline{1-e^2}^{\frac{1}{4}} = \times \left(1 - \frac{e^2}{4} - \frac{3}{32}e^4\right)$$

nearly.

609* From the above value of the radius vector when the equation of the centre is the greatest, the corresponding, true, and eccentric anomalies may be computed by the general equations for those purposes given above.

Viz. $\rho = \frac{a \cdot 1-e^2}{1-e\cos.u} 1\ \rho = a.\overline{1+e.\ \cos\ u}$; and hence, too, the mean anomaly nt is determined from $nt = u + e.$ sine u, and finally there results the greatest equation of the centre $= +\overline{v-nt}$.

We proceed now to the principles of the method by which the place and motion of the aphelia are determined.

610. It is evident that the sun being in perigee at the least distance and in apogee at his greatest, if we could measure his diameter with sufficient nicety, so as to determine when it is greatest or least, the corresponding places of the sun would be those of the perigee and the apogee respectively; or if, by observing the sun's place from day to day, we could ascertain the times when his angular motion was the greatest or least, his places at the corresponding time would be those of the required points. And if, at a period considerably distant, like observations were repeated, a comparison of the results would shew whether the place of the apogee was stationary or not.

611. Now by the observations of various astronomers, it has been found that the apogee of the earth's orbit is progressive, as may be seen from the following statement:

Astronomer.	Year.	Longitude of Apogee.
Cochin King .	1279	3s. 0° 8′ 0″
Waltherus . .	1496	3 3 57 57
La Hine . .	1684	3 7 28 0
Flamsteed . .	1690	3 7 35 0

The mean result of these observations gives about 1′ 3·4″ for the annual progressive motion of the apogee of the earth's orbit.

612. The following, however, is a more accurate method of determining the progression of the apogee. Let S E r (fig. 13. Plate VI.) be a right line, and draw T E t, making with A B, the major axis, an angle T E A = S E A; now the time through r B t S is less than the time through the remaining arc S A T r; for the equal and similar areas S E t, T E r, are described in equal times, but the area r E t, is less than S E T, and it will therefore be described in less time; whence r E t + S E t, which is equal to S E r t S, is described in less time than S E T + T E r, which compose the area S E r T S. This property belongs to every line drawn through E, except A B, the major axis, or the line which joins the aphelion and perihelion of the orbits. Hence, if on comparing two observations of the sun in opposite longitudes, as at S and r, it appears that the time elapsed is not half a year, we may be sure that the sun has not been observed in apogee or perigee. In practice, however, the interval will not differ much from half a year, and the true position of the apogee may be determined in the following manner:

613. The time from r to S = the time from r to B + the time from B to A — the time from S to A; or, time from B to A — time from r to S = time from S to A — time from r to B. Now the first of these differences is known, being the difference between half an anomalistic year (the time from the sun's leaving the apogee till his return to it) and the observed interval; and the second term of the second difference may be expressed by means of the first. For let the first term = t, then the time from r to B $= t.\frac{\text{area } r\,\text{E B}}{\text{area S E A}} = t\,\frac{r\,\text{B} \times \text{E B}}{\text{S A} \times \text{E A}}$ (r and S being supposed near the apsides)

$$= t.\frac{r\ \text{B}}{\text{E B}} \times \frac{\text{E A}}{\text{S A}} \times \frac{\text{E B}^2}{\text{E A}^2} = t \times \frac{\text{E B}^2}{\text{E A}^2}$$

$= t \times \frac{\text{angular velocity at A}}{\text{angular velocity at B}}$. For $\frac{r\ \text{B}}{\text{E B}} = \frac{\text{S A}}{\text{A E}}$ each representing the incremental angle r E B.

614. Now the angular velocities at A and B, or the increments of the sun's longitude, being known from observation, and the time from r to B being expressed in terms of those velocities and of t, the quantity t may be readily determined; whence the exact time when the sun is at A; and his longitude, computed for that time, is the longitude of the apogee.

EXAMPLE.

1743. Dec. 30. 0h. 3m. 7s. ☉'s long.	9s	8°	29′	12·5″
1744. Jun. 30. 0h. 3m. 0s.	3	8	51	1·5
Difference .	6	0	21	4·9

Therefore at the second observation, June 30th, the sun was past S. In order to find when the apogee was at S, that is, when the difference of the longitude was six signs (or supposing the perigee to have progressed through 31″) when the difference of the longitudes was 6 s 0° 0′ 31″, we must find the time of describing 21′ 49″ — 31″, or 21′ 18″. This is easily effected by this proportion, as the sun's daily motion on June 30th (57′ 12″) : 24 hours : : 21′ 18″; 8h. 56m. 13s., which taken from June 30th, 0h. 3m., leaves June 29th 15h. 6m. 47s. for the time when the difference of the sun's longitudes under the given circumstances was 180° 0′ 31″.

615. The interval between this last time and Dec. 30th, 0h. 3m. 7s. the time of the past observation, is 182d. 15h. 3m. 40s., nearly the time from r to S: but this time is less than half an anomalistic year, which is 182d. 15h. 7m. 1 s., as has been found by repeated observations, and as we have seen above: t — time from r to B = 3m. 21s.; and time from r to B $= t.\frac{57'\ 12''}{61'\ 12''}$; whence, by substitution and reduction, we have t = 47m. 54s. This added to June 29th, 15h. 6m. 47s., when the sun was at S, gives June 29th 15h. 6m. 47s. for the time when he was in apogee.

616. The sun's longitude at that time must be less than his longitude on June 30th, 0h. 3m by the difference due on the difference of the times, which is 8h. 8m. 19s. This quantity is easily found by proportion to be 19′. 21″, and

hence the longitude of the apogee is 98°. 31′ 40·5″, or 8ˢ 31′ 40·5″ past the summer solstice.

617. From the longitude at any given time and the annual progression, the position of the apogee and of the axis of the solar ellipse may be found by proportion for any other time. If it were required, for example, to find when the axis of the solar ellipse was perpendicular to the line of the equinoxes, or when the longitude of the perigee was 270°. Now its longitude in 1750 was 9ˢ 8° 37′ 28″, hence, taking the annual progression at 62″, $\frac{8^\circ\ 37'\ 28''}{62''} =$ about 500 years, as the major axis was perpendicular to the line of the equinoxes in 1250. It is remarkable, that the period in which the major axis coincided with the time of the equinoxes, is at the time which astronomers consider to be that of the beginning of the earth.

618. Our next object is to explain those observations made at the earth, and reduced to what they would have been if the observer had been at the sun; as the methods of extricating from the geocentric observations of a planet's place, the elements of the orbit which it describes round the sun.

619. The observations made on the earth are, generally speaking, for right ascensions by the transit instruments, and polar distances by the quadrant or axle The latitudes and longitudes are not observed, but computed from the right ascensions and declinations. Let A, fig. 15. plate VI., represent the first point of Aries, A C a portion of the ecliptic, A B a portion of the equator, S a star, S B its declination, and S C its latitude; then A B will be its right ascension and A C its longitude round B A C, the obliquity of the ecliptic. Now the method of finding B A C has already been shown; B S is determined by the circle or quadrant, and A B by the time shown by the siderial clock when the sun is on the meridian. Hence A C, C S, and the angle B A C, are given to find A B and B S. Now cos. A S = cos A C . cos. C S; cos. S A C = cos. C S . in A C, S A B = S A C = B A C; tan A B = cos. S A B . tan. A S and sin. B S = sin. A S . in B A S. Hence the geocentric latitudes and longitudes may be always determined.

620. If $a =$ the right ascension, $d =$ the declination, $l =$ the latitude, $\lambda =$ the longitude, and $o =$ the obliquity of the ecliptic, then l and λ may be determined from the following equations:

$\tan.\lambda = \sin.o\ .\ \tan.d\ .\ \sec.a + \tan.a\ .\ \cos.o$

$\sin.l = \sin d\ .\ \cos.a - \sin.a\ .\ \cos.d\ .\ \sin.e.$

621. By either of these methods the geocentric latitude and longitude may be determined. Among the resulting values of the latitude, some will be either nothing or very small. If the geocentric latitude is nothing, the heliocentric latitude is also nothing, or the planet is in the plane of the earth's orbit, or in that point of its own orbit which is called its node; the node being the intersection of the orbit of a planet with the plane of the ecliptic. It is not likely, however, that the planet will be observed exactly in the node; but if by one observation its latitude is found to be a south, and by another at an interval of time t, to be a' north, the $\frac{a\ t}{a + a'}$ is the interval, which added to the time when the planet had the latitude, a will give the instant at which it was in its node.

622. As we can thus find the time of a planet's entering its node, we can determine the time of its passage from the descending to the ascending node, and also the time between two successive returns to the same node; and if the place of the nodes and the dimensions and line of the orbit remain unchanged, the latter interval must be the periodic time of the planet; and if the former interval were half the latter, it would prove either that the orbit of the planet was circular, or, if elliptical, that its major axis coincided with the positions of the nodes.

623. Now let N P, fig. 14, plate VI. be part of the orbit of a superior planet, N π C a portion of the ecliptic, E the earth, S the sun; and let P π be an arc of a great circle from P perpendicular to the ecliptic. A spectator at E, sees P π under the angle P E π, which is therefore the geocentric latitude; and a spectator, as S, would see P π under the angle P S π, which is therefore the heliocentric latitude. If γ be the first point of Aries, then as the diameter of the earth's orbit subtends no sensible angle at the fixed stars, a line drawn from E to γ may be considered as parallel to a line drawn from S to γ. Hence

the geocentric longitude of P (L) is $\angle\ \pi\ E\ \gamma$
the heliocentric longitude of P (P) is $\angle\ \pi\ S\ \gamma$
the longitude of the sun, ($\odot$) is $\angle$ S E γ,

and consequently,

$$L = \odot + \angle\ S\ E\ \pi = \odot + E,$$

E representing the angle S E π, called the angle of elongation.

624. The angle E S π, is called the angle of commutation, (C) the angle S π E, or rather the angle S P E, under which the earth's radius appears from the planet, is called the annual parallax.

625. To proceed. $\gamma\ S\ \pi, (P) = \angle\ S\ E\ \gamma + 180^\circ - E\ S\ \pi = \odot + 180^\circ - C$, whence P may be determined, if C be previously known. But S E is known from the solar theory, and S E π, or E = L − $\odot$ is known, since L can be computed as we have shown above from the observed right ascension and declination, and $\odot$ is known from the solar theory; therefore to find the angle E S π, and all the other parts of the triangle, it is only necessary to know S π, which is called the curtate distance.

626. Now S π = S P cos. $\angle$ P S π = γ . cos. H; whence to find S π we must know the values of γ and H. Let I = P N π, represent the inclination of the planet's orbit, to the plane of the ecliptic. Then by spherics, tan. H = cos. N π . tan. I, whence to find H we must previously know I and N π, the distance of the reduced place of the planet from the node of its orbit, which distance is evidently equal to the longitude of the planet, minus the longitude of the node.

627. If the eccentricity of the orbit be small, S P, or r, may be determined by Kepler's law, but it is the mean distance which is determined

by that law; and therefore except P move in a circle, S P so determined will not be quite correct. And in fact there is no direct and general method of determining S P. Astronomers therefore select those positions of a planet in which its heliocentric longitude is exactly known. Now when the inferior planets are in conjunction, their longitudes are exactly known, as when they are in superior conjunction their longitudes are equal to ☉, and in inferior equal to 180° + ☉.

628. In such positions then the heliocentric longitude is obtained without any knowledge of S P, and without trigonometrical computation. The geocentric longitude may be computed from the right ascension and declination by the formulæ already given.

629. If we conceive N π C to represent the earth's orbit, and *e* E that of an inferior planet, then E π S is called the planet's angle of elongation, and π E S its annual parallax, when π E is a tangent to E *e*.

To find the periodic time, mean motion, and distance of a planet.

630. From the observed right ascensions and declinations compute its geocentric latitude; and find when it is equal to nothing. The planet is then in its node. Find in the same way at some subsequent period when it returns to the same node, and thence the periodic time may be determined.

631. This method of finding the periodic time serves also to show whether the orbit is eccentric, and the degree of the eccentricity; as will appear from the following detail given by Delambre, for finding the periodic time of Mars:—July 23d, 1807. ♂ in his descending node (☋) and his southern latitude increased till Dec. 16th. If the latter time be assumed as that when his latitude was greatest, and the interval (145 days) of his passage from the node to that position, be taken as one-fourth of his periodic time, the period will then be 560 days.

632. But on May 21st, 1808, ♂ in his ascending node (☊) and the interval in his passage from ☋ to ☊ was 302 days. If that interval were half the period, the period would be 604 days.

633. Again on March 7th, 1809, the north latitude of Mars was 2° 49′; and in June 8th, it was (0), when Mars had returned to the node in which he was on July 23d, 1807, in 687 days, which must be very nearly the period of his revolution.

634 Now from this detail, and what we have done before, we may infer that the orbit of Mars is not circular, and that the major axis is neither perpendicular to, nor coincident with, the line of the node.

635. But we may draw farther inferences. The time from ☋ to ☊ being less than the other half of the period by 83 days; if (plate VI. fig. 13) N *n* represent the line of the nodes, we have $\frac{NA n - NB n}{NA n} = \frac{83}{385}$ since the areas are proportional to the times. Now when N *n* is perpendicular to A B, the difference between N A *n* and N B *n* is a maximum. In such a position $\frac{AEN - NEB}{AEN}$ would be nearly $\frac{41}{193}$ or the time from B to N would be nearly 152 days and from N to A 193 days.

636. But the period being nearly 687 days in which the planet describes 360° the time of describing 90° would be nearly 171 days, supposing the planet to depart from B, and to move with its mean motion; but as we have seen, the planet was in N nineteen days previously, in which time its mean motion is equal to nearly 10°. When the real planet therefore was at N, the fictitious body moving with the planet's mean motion would be nearly 10° behind. Now this difference is what has been denominated the equation of the centre, which at N is nearly at its greatest value. Hence the greatest equation of the centre in Mars cannot be less than 10°. The same process for finding the periodic time, and like inferences respecting the eccentricity are applicable to Jupiter and Saturn. But the Georgian planet has not completed more than half a revolution since it was first discovered, and yet we have the elements of its orbit to a very considerable degree of exactness. The following method of determination by La Lande (one indeed of trial and conjecture, but which after a few times is sure of succeeding) will be easily understood.

637. Resuming the notation already employed; the angle of elongation (E) = L—☉, L being the geocentric longitude, and E π S, the angle of parallax (π) is the difference of the heliocentric and geocentric longitudes, and therefore equal to P—L. Now E = L — ☉ is known, and π is known from the expression sin. π = sin. E, $\frac{S E}{S \pi}$ if we can find S π. If we assume a value (*r*) for S π (S π and S P being nearly equal) we shall from the above equation have a corresponding value of π, and thence of P: let this value be represented by P′. Make another computation with π and a second and third geocentric longitude, and let the resulting heliocentric longitudes be P″ and P‴. Then we have P″ — P′, P‴ — P″, and P‴ — P′, and from the three times of observation, *t*; *t*″ and *t*‴ we have *t*″ — *t*′, *t*‴ — *t*″ and *t*‴ — *t*′.

Hence P‴ — P′ : *t*‴ — *t*′ :: 360° : planet's period,
Or P″ — P′ : *t*″ — *t*′ :: 360° : planet's period,
As P‴ — P″ : *t*‴ — *t*″ :: 360° : planet's period.

638. By any of these three proportions may the period be computed; but *r* is assumed as the mean distance, and if 1 = the earth's mean distance, and *p* its periodic time; the periodic time of the planet will be represented by $p\, r^{\frac{3}{2}}$; and if this result agree with the former one, it will be a proof that *r* has been rightly assumed; and the disagreement by its nature and magnitude will point out the manner and extent of correcting the first assumption for γ.

639. La Lande computed from three geocentric observations of the planet made on April 25th, July 31st, and Dec. 12th, 1781, and he found from the above formulæ, the periodic time. The two values disagreeing he amended his first assumption, guided partly by conjecture and partly by his first trial, till a value of *r* was obtained, which agreed with all the observations.

640. The distance of an inferior planet may also be determined from observations on its dis-

tance from the sun when stationary, or from what has been called its greatest elongation. Let E and E′ be two of the greatest elongations, one when the planet is in aphelion and the other in perihelion, e the eccentricity of the orbit, R and R′ the distances of the earth from the sun, and r the planet's mean distance; then $e = \frac{R \sin = E - R' \sin E'}{2r}$ an equation which determines the relation between the eccentricity and mean distance.

641. We proceed now to the method of determining the place of the node of a planet's orbit, and the inclination of its orbit to the plane of the ecliptic. In fig. 16, plate VI. let N n, represent the nodes. Now from the observed right ascension and declination we can in an hour even compute the planet's geocentric latitude, and when this is equal to 0, the planet is in its node. Lat. E, E′ be the two positions of the planet when, as viewed from the earth, it is respectively at n and N. Then S E n = geocentric longitude of planet at n — ☉ and S E′ N = ☉′ — geocentric longitude of planet at N. Now we already know how to compute S N or S n, and hence in the triangles S E n, S E N, we can compute the angles n S E, S n E, and N S E′, S N E′; and thence heliocentric lon. of n = 180 + ☉ — ∠ nSE and heliocentric lon. of N = ☉′ — 180 + ∠NSE′, ☉ and ☉′ representing the sun's longitudes at the two times of observation; and the angle E S E′ is proportional to the earth's motion during the planet's passage from n to N.

642. It is evident that the determination of the place of the node is the more difficult, the less is the inclination of the planet's orbit; and it is difficult on this account to determine the nodes of the orbits of Jupiter and the Georgian planets.

643. The longitude of the node being found, the inclination of the orbit may be thus determined: Compute the day on which the sun's longitude will be the same, or nearly the same as the longitude of the node, the earth will then be nearly in the line of the nodes N n, at some point e, fig. 16, plate VI. On that day observe the planet's right ascension and declination, and thence deduce the geocentric latitude (G.) Then $t_D = e\,t$ tan. $G = S\,t \frac{\sin. t\,S\,e}{\sin. S\,e\,p}$ tan.$G = \frac{\sin. N\,t}{\sin. E}$ tan. G; but sin. N t = cot. t N p. $t\,p$; or tan. I sin. N t = $t\,p$ (I denoting the inclination); whence tan. I. = $\frac{\text{tan. G}}{\text{sin. E}}$. A like diagram and a similar process will apply to a superior planet. The inclination may also be determined from observing the planet at conjunction when its latitude is considerable. If r = the planet's distance from the sun reduced to the ecliptic, I the inclination, and G, as above, the geocentric latitude. Then it may be easily shown, that:

$$\text{tan. I} = \left(1 - r + \frac{r}{2} \text{ tan. }^2 \text{I}\right) \frac{\text{tan. G}}{\text{sin. } (\odot - \Omega)}$$

an equation from which I may be obtained, either by approximation, or the solution of a quadratic equation.

644. The next step in the investigation is the determination of the form of the planetary orbits. For the sake of simplifying the problem, in the first instance, we shall suppose that the planet's orbit lies in the plane of the ecliptic. Since the mean motion is known from the periodic time, and by observing in opposition or conjunction the planet's true longitude we can at any instant determine its mean longitude. Then if the elapsed time were the interval between two conjunctions, and the orbit were circular, the computed mean longitude would agree with the last observed longitude; and a difference would be an indication of the orbit's eccentricity; which difference must depend both on the eccentricity and the place of the aphelion.

645. To apply these considerations to the subject in hand, let N (fig. 14, plate VI.) be the node of the orbit. Then as its longitude may be considered (from what has preceded) as known, and the longitude of a planet when in conjunction with the sun is known, being equal to 180° + ☉, if we deduct the longitude of the planet from the longitude of the node, there remains N π. Now as the elliptical motion takes place in the orbit N P it is requisite to know N P, and other like distances of the planet from its node. But N π being known, and the angle P N π; the distance N P may be computed. For let P N = cos. N. cos. N π.

646. If we set off on the orbit of the planet an arc (A) = N r, the longitude of the node, we shall have A + N P which is called the longitude of the planet on its orbit; and we can have as many such longitudes as there are observations in conjunction or opposition.

647. Three observations are sufficient to determine the two elements of the eccentricity, and the place of the aphelion; for if we have three longitudes (V′, V″, V‴,) we have two independent differences of longitude, and as soon as the planet's period is known, we can compute two portions of its mean motion corresponding to the two corresponding noted intervals of time; and the two real differences of longitude compared according to the elliptic theory, with the corresponding portions of mean motion, will give us two equations for determining the eccentricity and place of the aphelion.

648. Let e be the eccentricity (supposed to be very small) ϕ the longitude of the perihelion, the place of which suppose to be at some point between N and P, and let M, M′, M″, be the mean anomalies reckoned from the perihelion. Then we have

$$V - \phi = M + 2\,e \text{ . sin. } \overline{V - \phi}$$
$$V' - \phi = M' + 2\,e \text{ . sin. } \overline{V' - \phi}$$
$$V'' - \phi = M'' + 2\,e \text{ . sin. } \overline{V'' - \phi}$$

Hence $\overline{V' - V} - \overline{M' - M} (= a) = 2\,e. \left\{ \text{sin. } \overline{V' - \phi} - \text{sin. } \overline{V - \phi} \right\}$

And $\overline{V'' - V'} - \overline{M'' - M'} (= b) = 2\,e. \left\{ \text{sin. } \overline{V'' - \phi} - \text{sin. } \overline{V' - \phi} \right\}$

Now as V, V′, V″ are known, and $\overline{M'-M}$ $\overline{M''-M'}$ are known from the period of the planet and the elapsed time; for if t be the interval between the observations of V and V′; we have

Planet's period : 360° :: t : $M'-M = \frac{t.\ 360°}{\text{period.}}$

Hence since a and b are known, we have two equations for determining e and ϕ. If the first of these equations be divided by the second we have

$$\frac{a}{b} = \frac{\sin.\ \overline{V'-\phi} - \sin.\ \overline{V-\phi}}{\sin.\ \overline{V''-\phi} - \sin.\ \overline{V'-\phi}}$$

from whence, by reduction we obtain

$$\tan.\ \phi = \frac{a \cdot \sin.\ V'' - \sin.\ V' - b \cdot \sin.\ V' - \sin.\ V}{a \cdot \cos.\ V'' - \cos.\ V' - b \cdot \cos.\ V' - \cos.\ V}$$

Hence, ϕ being determined, we have

$$e = \frac{a \cdot \sin.\ 1''}{2\left[\sin.\ \overline{V'-\phi} - \sin.\ \overline{V-\phi}\right]} = \frac{a \cdot \sin.\ 1''}{4 \cdot \sin.\ \frac{V'-V}{2} \cdot \cos.\left(\frac{V'+V}{2} - \phi\right)}.$$

649. Then e and ϕ, and the major axis being determined, we can compute the radius sector γ from this expression, $r = \frac{a \cdot 1 - e^2}{1 + e \cdot \cos.\ V - \phi}$: and since the place of the node, and the inclination of the orbit are determined, we can compute the curtale distance S π, on the supposition that S P, from which it is deduced, is the radius vector of an elliptical orbit. If, therefore, in any of the processes for determining the elements of the planet's orbit, the curtale distance S π has been supposed derived from S P, considered as a mean distance, we may now, with a more correct value of S π, repeat the operations and correct the results.

650. We shall now direct our attention to the method of finding the synodical revolutions of the planets, and of computing their returns to the same point of their orbits.

651. The time between conjunction and conjunction, or between opposition and opposition, is called a synodical period. Let us suppose that at a given instant the sun, Mercury, and the earth, are in the same right line; then, after any elapsed time (a day for example), Mercury will have described an angle m, and the earth an angle M, round the sun. therefore at the end of a day the separation of Mercury from the earth, as seen from the sun, will be $m - M$, and at the end of s. days $s.\ \overline{m-M}$; and when $s.\ \overline{m-M} = 360°$, the sun, Mercury, and the earth, will be again in the same right line, and in that case

$s = \frac{360°}{m-M}$, where s denotes a synodical period and m, M the mean motions of Mercury and the earth for any equal intervals of time.

653. Let P and p denote the siderial periods of the earth and the planet; then, since 1 d. : M° : : P : 360° and 1 d. : m° : : p : 360°, we have $M = \frac{360}{P}$ and $m = \frac{360°}{p}$; which substituted for m and M in the preceding equation, gives $s = \frac{P\,p}{P-p}$. Or if 1 represents the earth's mean distance, and r that of the planet; we have P; p : : 1 : $r^{\frac{3}{2}}$; or $\frac{P}{p} = r^{-\frac{3}{2}}$ whence $s = \frac{P}{r^{-\frac{3}{2}} \sim 1}$.

We have here three expressions, from any of which s may be computed.

654. For instance, in the case of Mercury, $p = 87$ d. 969, and P being 365·269, we have s, the synodical period of Mercury $= \frac{365{\cdot}256 \times 87{\cdot}969}{277{\cdot}287} =$ 15d. 21h. nearly.

In the case of the moon, $m = 13°{\cdot}1763$, and M, the earth's daily mean motion $= 59'\ 8''{\cdot}3$; whence $s = \frac{360°}{m-M} = 29$ d. 12h. nearly

655. Since $s = \frac{P\,p}{P-p}$, $p = \frac{s\,P}{s+P}$; therefore from the known periodic time of the earth, and the observed synodic period of a planet, we can determine p, the periodic time of the planet. But to insure accuracy in the determination, the return of the planet to a conjunction nearly in the same part of its orbit, at which a previous one was observed, ought to be noted, and the interim divided by the number of synodical revolutions will give the mean synodic period. For under these circumstances there will be nearly a mutual compensation of the inequalities arising from the elliptic form of the planet's orbit.

656. Another reason for attending to this caution, is that on such conjunction depend the transits of Venus and Mercury, over the sun's disk. For it is evident that Venus to be seen on the sun's disk, must not only be in conjunction, but near the node of her orbit: at the next conjunction, after one synodical revolution, she cannot be near her node, and can only be again near when she returns to the same part of her orbit, as at the first time of observation.

657. The preceding formulæ for the synodic periods afford us the means of knowing these particular conjunctions.—

The time s of a synodic period is $= \frac{P\,p}{P-p}$, therefore at $\frac{n \times P\,p}{P-p}$, the planet will still be in conjunction, n representing any whole number. It will therefore be for the first time in conjunction, and the earth and planet will also be in the same part of their orbits, when $\frac{n \cdot P\,p}{P-p} =$ P, or when $n = \frac{P-p}{p}$. Hence the required conjunction can only take place when $\frac{P-p}{p}$, or some of its multiples is a whole number, say when, $\frac{m \cdot P-p}{p} = n$, or when $\frac{m}{n} = \frac{p}{P-p}$; whence we have simply to find two integers, m and n, such that $\frac{m}{n} = \frac{p}{P-p}$.

658. Now the tropical revolution of Mercury is 87·968 days, hence $\frac{m}{n} = \frac{87{\cdot}968}{365{\cdot}256 - 87{\cdot}968}$

$= \frac{87{\cdot}968}{277{\cdot}288}$, consequently in 87,988 periods of the earth, there will be 277288 synodical revolutions of Mercury, which will then be observed again in conjunction, and in the same part of its orbit. This result however, from the length of the period, is of no practical use; we must, therefore by means of continued fractions (see ALGEBRA) endeavour to find fractions in smaller terms, having nearly the same value as $\frac{87968}{277288}$,

659. Making the computation we find the following series of fractions continually approximating to this value.

$\frac{1}{3}$, $\frac{6}{19}$, $\frac{7}{22}$, $\frac{13}{41}$, $\frac{33}{104}$, $\frac{46}{145}$, &c. in which the denominators denote the number of synodical revolutions, corresponding to the number of years expressed by the numerator. Take as an example the fourth fraction, in thirteen years, one 474·8328 days, and forty-one synodical periods, 475·0875 days, differing by only about six hours. If the sixth fraction be taken the difference will be little more than two hours.

660. In a similar way we may compute a series of fractions which will indicate the periods when transits of Venus may be expected. Thus, as Venus's period (p) = 224 d. 7008240, and the earth's (P) = 365d. 256385, the synodical period of Venus (s) $\frac{P\,p}{P-p}$ = 583·92 d. nearly; and consequently in one synodical period the earth describes 575°·51 nearly; as in n synodical periods, n. 575°·51; and when this first becomes a multiple of 360°, the earth and Venus will be first in conjunction, in the line from which they originally departed. If, therefore, Venus were so near the node in this original position that a transit took place, a transit will take place when (as before) $\frac{m}{n} = \frac{57551}{36000}$ Whence, by continued fractions, we obtain $\frac{1}{1}$, $\frac{2}{1}$, $\frac{3}{2}$, $\frac{8}{5}$, $\frac{222}{142}$, $\frac{235}{143}$, &c. a series of approximating value to $\frac{57551}{36000}$, from which we are able to tell after what number of synodic periods Venus and the earth will be nearly in the same parts of their orbits.

661. Thus, taking the fifth fraction, we infer that after 142 synodic periods, 227 circumferences nearly, will be described; or 142 synodic periods are nearly equal to 227 years; and on trial we find 575°·51 × 142 = 360° × 227 + 2° 42′, or 2°·42 in excess. If we take the sixth fraction we shall find the result only 0°·03 in defect. Hence, 235 years after a transit of Venus we may confidently expect another, and also after 235 + 8, or 243 years; neglecting as we have done, and may safely do, the small alteration in the place of the node, that takes place in the interval of the transit.

662. A transit, however, may happen when the planet is in, or nearly in, the opposite node of her orbit. To find the time when it is probable that transits in the opposite node may happen, we have merely to find approximative values of $\frac{57551}{18000}$, which will be $\frac{3}{1}$, $\frac{16}{5}$, $\frac{227}{71}$, $\frac{470}{147}$, &c. Taking the third of these fractions, we have 71 × 575°·51 = 180° × 227 + 1°·21; the fourth gives 147 × 575°·51 = 180° × 470° − 0°·03. Whence, supposing the earth, Venus, and the sun, to be exactly in a line, Venus being in one of her nodes, then, in 71 synodic periods, Venus will be 1°21 distant from the other node, and in 147 synodic periods, only about three hundreth parts of a degree distant from that node.

663. Did our limits permit, we should now enter upon the most difficult branch of the science, the Lunar Theory, but we must content ourselves with referring those who would acquaint themselves with this highly interesting subject, to the works of La Lande, La Place, and other foreigners, and to the astronomy of the late Professor Vince; more especially, however, to the elegant and masterly work of Professor Woodhouse.

664. *Table of the Transits of Venus over the Sun's Disk, that will occur to the Year* 3000.

Years.	True Time of Middle of Transit.				Semiduration for centre of Venus.			Shortest Dist. observed at the Earth's centre.		
			H.	M.	S.	H.	M.	S.		
1874	Dec.	8	15	43	27	2	4	41	13′	51″ N
1882	Dec.	16	4	49	41	3	1	43	10	29 S
2004	June	7	20	26	58	2	44	50	11	19 S
2112	June	5	13	37	25	3	20	45	8	20 N
2117	Dec.	10	14	34	0	2	22	50	13	0 N
2125	Dec.	8	3	44	30	2	48	20	11	28 S
2247	June	11	23	51	13	2	7	52	13	17 S
2255	June	8	16	59	9	3	36	2	6	23 N
2360	Dec.	12	13	29	31	2	42	27	11	49 N
2368	Dec.	10	2	38	5	2	29	12	12	37 S
2490	June	12	3	13	58	1	2	14	15	14 S
2498	June	9	20	20	58	3	46	24	4	29 N
2603	Dec.	15	12	25	54	2	56	47	10	56 N
2611	Dec.	13	1	40	30	2	15	20	13	20 S
2733	June	15	6	33	52				17	9 N
2741	June	12	23	38	38	3	53	23	2	35 N
2846	Dec.	16	11	26	34	3	7	24	9	56 N
2864	Dec.	14	0	44	20	1	54	10	14	12 S
2984	June	14	2	51	52	3	56	9	0	45 N

665. *Table of the Transits of Mercury over the Sun's Disk, that will occur before the Year* 1900.

Years.	True Time of Middle of Transit.				Semiduration.			Shortest Declin. observed at the Earth's centre.	
			H.	M.	S.	H.	M.	S.	
1832	May	4	0	18	0	3	28	2	8′ 16″ N
1835	Nov.	7	8	12	21	2	33	53	5 37 S
1845	May	8	7	32	57	3	22	33	8 58 S
1848	Nov.	9	7	49	42	2	41	33	2 36 N
1861	Nov.	11	19	20	13	2	0	23	10 52 N
1868	Nov.	4	19	18	20	1	45	2	12 20 S
1878	May	6	6	55	13	3	53	3	4 39 N
1881	Nov.	7	12	59	32	2	39	9	3 57 S
1891	May	9	14	14	32	2	34	20	12 21 N
1894	Nov.	10	6	36	28	2	37	36	4 20

Sect. VI.—Preliminary Observations respecting Eclipses.

666. Before we lay down rules for calculating eclipses, it is necessary to make a few general observations respecting their nature and causes. All the planets and satellites being illuminated by the sun, cast their shadows towards that point of the heavens which is opposite to the sun. This shadow is nothing but a privation of light, in the space hid from the sun by the opaque body that intercepts his rays. When the sun's light is intercepted by the moon, so that he appears covered in whole, or in part, to any part of the earth, he is said to undergo an eclipse; though, properly speaking, it is only an eclipse of that part of the earth where the moon's shadow or penumbra falls. When the earth comes between the sun and moon, the moon falls into the earth's shadow; and having no light of her own, she suffers a real and total eclipse from the interception of the sun's rays. When the sun is eclipsed to us, the moon's inhabitants, on the side next the earth, see her shadow like a dark spot travelling over the earth, about twice as fast as its equatorial parts move, and the same way as they move. When the moon is in an eclipse, the sun appears eclipsed to her inhabitants; totally to all those parts on which the earth's shadow falls, and of as long continuance as they are in the shadow.

667. Although all opaque bodies, on which the sun shines, have their shadows, yet such are the distances of the planets, and the size of the sun, that the primary planets can never eclipse one another. A primary can eclipse only its secondary, or be eclipsed by it; and never but when in opposition or conjunction with the sun. The primary planets are very seldom in these positions, but the sun and moon are so every month; whence one may imagine that these two luminaries should be eclipsed every month. But there are few eclipses in respect of the number of new and full moons; the reason of which we shall now explain.

668. If the moon's orbit were coincident with the plane of the ecliptic, in which the earth always moves, and the sun appears to move, the moon's shadow would fall upon the earth at every change, and eclipse the sun to some parts of the earth. In like manner, the moon would go through the middle of the earth's shadow, and be eclipsed at every full; but with this difference, that she would be totally darkened for above an hour and an half; whereas the sun never was above four minutes totally eclipsed to us by the interposition of the moon. But one half of the moon's orbit is elevated 5½ degrees above the ecliptic, and the other half as much depressed below it; and when the sun and moon are more than 17° degrees from either of the nodes at the time of conjunction, the moon is then generally too high or too low in her orbit to cast any part of her shadow upon the earth: when the sun is more than 12° from either of the nodes at the time of full moon, the moon is generally too high or too low in her orbit to go through any part of the earth's shadow; and in both these cases there will be no eclipse.

669. But when the moon is less than 17° from either node at the time of conjunction, her shadow or penumbra falls more or less upon the earth, as she is more or less within this limit. And when she is less than 12° from either node at the time of opposition, she goes through a greater or less portion of the earth's shadow, as she is more or less within this limit. Her orbit contains 360°; of which 17°, the limit of solar eclipses on either side of the nodes, and 12°, the limit of lunar eclipses, are but small portions; and, as the sun commonly passes by the nodes but twice in a year, it is no wonder that we have so many new and full moons without eclipses.

670. To illustrate this, let ABCD, plate V. fig. 9, be the ecliptic, RSTU a circle lying in the same plane with the ecliptic, and VXYW the moon's orbit, all thrown into an oblique view, which gives them an elliptical shape to the eye. One half of the moon's orbit, as VWX, is always below the ecliptic, and the other half, XYV, above it. The points V and X, where the moon's orbit intersects the circle RSTU, which lies even with the ecliptic, are the moon's nodes; and a right line, XEV, drawn from one to the other through the earth's centre, is the line of the nodes, which is carried almost parallel to itself round the sun in a year. If the moon moved round the earth in the orbit RSTU, which is coincident with the plane of the ecliptic, her

shadow would fall upon the earth every time she is in conjunction with the sun, and at every opposition she would go through the earth's shadow; and thus the sun would be eclipsed at every change, and the moon at every full.

671. But although the moon's shadow N must fall upon the earth at *a* when the earth is at E, and the moon in conjunction with the sun at *i*, because she is then very near one of her nodes; and at her opposition, *n*, she must go through the earth's shadow I, because she is then near the other node, yet, in the time that she goes round the earth to her next change, according to the order of X Y V W, the earth advances from E to *e*, according to the order of E F G H; and the line of the nodes V E X, being carried nearly parallel to itself, brings the point *f* of the moon's orbit in conjunction with the sun at that next change. The moon being then at *f*, is too high above the ecliptic to cast her shadow on the earth; and, as the earth is still moving forward, the moon at her next opposition will be at *g*, too far below the ecliptic to go through any part of the earth's shadow; for by that time the point *g* will be at a considerable distance from the earth as seen from the sun.

672. When the earth comes to F, the moon, in conjunction with the sun Z, is not at *k* in a plane coincident with the ecliptic, but above it at Y, in the highest part of her obit; and then the point *b* of her shadow O goes far above the earth, as in fig. 2, plate IV, which gives an edge view of fig. 9. The moon, at her next opposition, is not at *o*, but at W, where the earth's shadow goes far above her, as in fig. 2, plate IV. In both these cases the line of the nodes is about 90° from the sun, and both luminaries are as far as possible from the limits of the eclipses. When the earth has gone half round the ecliptic, from E to G, the line of the nodes V G X is nearly, if not exactly, directed towards the sun at Z; and then the new moon *l*, casts her shadow P on the earth G; and the full moon *p* goes through the earth's shadow L; which brings on eclipses again, as when the earth was at E. When the earth comes to H, the new moon falls not at *m*, in a plane coincident with the ecliptic C D, but at W in her orbit below it; and then her shadow Q, see fig. 2, plate IV, goes far below the earth. At the next full she is not at *q*, fig. 9, plate V, but at Y in her orbit 5½ degrees above *q*, and at her greatest height above the ecliptic C D; being then as far as possible, at any opposition, from the earth's shadow M, as in fig. 2, plate IV.

673. Thus when the earth is at F and G, the moon is about her nodes at new and full, and in her greatest north and south declination (or latitude as it is generally called) from the ecliptic at her quarters; but when the earth is at F or H, the moon is in her greatest north and south declination from the ecliptic at new and full, and in the nodes about her quarters. The point X, where the moon's orbit crosses the ecliptic, is called the ascending node, because the moon ascends from it above the ecliptic; and the opposite point of intersection, V, is called the descending node, because the moon descends from it below the ecliptic.

674. When the moon is at Y, in the highest point of her orbit, she is in her greatest north latitude; and when she is at W, in the lowest point of her orbit, she is in her greatest south latitude. If the line of the nodes, like the earth's axis, was carried parallel to itself round the sun, there would be just half a year between the conjunctions of the sun and nodes. But the nodes shift backwards, or contrary to the earth's annual motion, 19½° every year; and therefore the same node comes round the sun nineteen days sooner every year than on the year before. Consequently, from the time that the ascending node X (when the earth is at E) passes by the sun as seen from the earth, it is only 173 days (not half a year) till the descending node, V, passes by him.

675. Therefore, in whatever time of the year we have eclipses of the luminaries about either node, we may be sure that in 173 days afterward we shall have eclipses about the other node. And when at any time of the year the line of the nodes is in the situation V G X, at the same time next year it will be in the situation *r* G *s*; the ascending node having gone backward, that is, contrary to the order of signs, from X to *s*, and the descending node from V to *r*; each 19½°.

676. At this rate the nodes shift through all the signs and degrees of the ecliptic in 18 years and 225 days; in which time there would always be a regular period of eclipses, if any complete number of lunations were finished without a fraction. But this never happens; for if both the sun and moon should start from a line of conjunction with either of the nodes in any point of the ecliptic, the sun would perform 18 annual revolutions and 222° over and above, and the moon 230 lunations and 85° of the 231st by the time the node came round to the same point of the ecliptic again; so that the sun would then be 138° from the node, and the moon 85° from the sun. But in 223 mean lunations, after the sun, moon, and nodes, have been once in a line of conjunction, they return so nearly to the same state again, as that the same node, which was in conjunction with the sun and moon at the beginning of the first of these lunations, will be within 28′ 12″ of a degree of a line of conjunction with the sun and moon again, when the last of these lunations is completed. And therefore in that time there will be a regular period of eclipses, or return of the same eclipse, for many ages.

677. In this period, which was first discovered by the Chaldeans, there are 18 Julian y. 11d. 7h. 43m. 20s., when the last day of February in leap years is four times included; but when it is five times included, the period consists of only 18y. 10d. 7h. 43m. 20s. Consequently, if to the mean time of any eclipse, either of the sun or moon, you add 18 Julian y. 11d. 7h. 43m. 20s., when the last day of February in leap-years comes in four times, or a day less when it comes in five times, you will have the mean time of the return of the same eclipse. But the falling back of the line of conjunctions, or oppositions of the sun and moon 28′ 12″, with respect to the line of the nodes in every period, will wear it out in process of time; and after that it will not return again in less than 12,492 years.

678. These eclipses of the sun, which happen about the ascending node, and begin to come in at the north pole of the earth, will go a little southerly at each return, till they go quite off the earth at the south pole; and those which happen about the descending node, and begin to come in at the south pole of the earth, will go a little north at each return, till at last they quite leave the earth at the north pole.

Sect. VII.—Of Calculating Eclipses.

679. The chief things to be considered in the calculation of eclipses are, the magnitudes of the shadow and penumbra of the opaque body, and the ecliptical limits, or the distance from the node, when an eclipse of the sun or moon will happen. These must be calculated both for lunar and solar eclipses. The operations may be performed as follows:—

I.—For Lunar Eclipses.

680. In plate VIII. fig. 3, let AB be the sun, and CD the earth. Draw AC, BD, by the edges of the sun and earth, which will meet in a point V, because the sun is bigger than the earth. Through the centres of the sun and earth, S and T, draw STV. Also draw BCE, ADF, touching the contrary sides of the sun and earth, intersecting in P; also draw SC and CT. If the whole figure be turned round, about the axis SV, the lines AV, BV, APF, BPE, will generate the two cones CVD, EPF; the cone CVD, is the dark shadow of the earth, EPF continued, is the penumbral cone. And beyond V, the section of the cone EPF, will be all in the penumbra.

681. Hence, 1. Half the angle of the cone of the earth's shadow CVT, is equal to the sun's apparent semidiameter, less his horizontal parallax. For in the triangle SCV, the external angle SCA = CVS + CST. And CST is the sun's parallax. Therefore CVT = SCA − CST.

682. 2. Half of the angle of the earth's penumbral cone CPT, is equal to the sun's semidiameter and his horizontal parallax. For in the triangle CSP, the external angle CPT = PCS + CST.

683. 3. Hence half the angle of the earth's penumbral cone CPT, is equal to half the angle of the dark cone CVT + twice the sun's horizontal parallax CST.

684. 4. The apparent semidiameter of the earth's dark shadow IK, upon the moon's orbit, is equal to the sum of the horizontal parallaxes of the sun and moon, less the sun's apparent semidiameter. For the angle VCI = CIT − CVI = CIT − SCA + CST.

685. 5. The apparent semidiameter of the earth's penumbra, GI, upon the moon's orbit, is equal to the sum of the horizontal parallaxes of the sun and moon + the sun's apparent semidiameter. For in the triangle PCI, the external angle CI = CIT + CPT = CIT + PCS + ST.

686. 6. Hence to find the length of the earth's shadow. In the triangle CTV there is given the angle V = sun's apparent semidiameter − his parallax, and CT the earth's radius, to find TV.

II.—For the Shadow and Penumbra, in solar Eclipses.

687. In plate IV, fig. 10, let AB be the sun, KL the moon, CD the earth. Draw the tangents AK, BL, by the edges of the sun and moon, on the same side, to meet in V; and BKG, ALH to touch the contrary sides. Draw SK, IK; and through S and I, the centres of the sun and moon, draw the axis SIV. Then if the whole figure AKVLB be turned about the axis SV. the sides AV, BV, and PH, PG, will generate two cones KVL, GPH. The cone KVL is the dark shadow of the moon, and the cone GPH is the moon's penumbral cone. Hence,

688. 1. The angle of the cone of the moon's shadow KLV, the angle of the penumbral cone KPL, the angles GKV, and HLV, are each equal to the sun's apparent diameter AKB, very nearly; and half the angle of either cone P or V is equal to the sun's apparent semidiameter. For by reason of the great distance of the sun from T, in respect of TP, TV, TI; the apparent diameter of the sun, seen from any of the places V, T, I, P, K, will be the same, that is, the angles AVB or KVL, APB or KPL, AKB or GKV, ALB or VLH are all equal; differing only by the angle KSI, which in the moon is insensible.

689. 2. The height of the cone IP is equal to the cone VI. And KPL, KVL, are equal and similar. For the angles at P and V are equal; and KL is common.

690. 3. The apparent semidiameter of the moon's dark shadow QO, upon the earth at O, seen from the moon, is equal to the moon's apparent semidiameter—the sun's apparent semidiameter. And if the sun's apparent semidiameter be greater, the shadow does not reach the earth. For draw KO; then in the triangle KOV, VKO = KOS − KVS = KOI − AVS = KOI − ½ the sun's apparent diameter.

691. 4. The apparent semidiameter of the moon's penumbra GO, upon the surface of the earth, as seen from the moon, is equal to the sum of the apparent semidiameters of the sun and moon. Draw GI and TGR. Then in the triangle GPI, the external angle GIO = GPI + PGI = KPI + KGI = KPI + KOI = AKS + KOI.

692. 5. Hence, to find the length IV of the moon's shadow. In the triangle KVI, there is given the angle KVI = half the sun's apparent diameter, and KI the earth's radius; whence VI will be had; and to find the arch QN of the earth, involved in the moon's dark shadow. In the triangle QVT, we have given TV the difference between the moon's distance from the earth, the height of the shadow; and the angle QVO = the sun's apparent diameter, and TQ the radius of the earth; to find the angle TQV, to which add QVT, and the sum is the angle QTO or arch QO; and doubled gives the whole arch QN.

693. 6. To find the arch of the earth GH involved in the penumbra; say, as the earth's radius GT: to S. of the sun's apparent semidia-

meter : : so is PT the sum of the moon's distance and cone's height: to S.TGP or RGK. From this take the sun's apparent semidiameter, and there remains GTO = GO, which doubled gives GH. For in the triangle GPT, there is given the angle P = the sun's apparent semidiameter, and PT the moon's distance and height of the cone, and TG the earth's radius; to find the angle RGK = GPT + PTG. Therefore PTG or OTG = RGK − GPT = RGK— the sun's apparent semidiameter.

III. To find the Ecliptical Limits.

694. An eclipse of the moon can only happen, when the distance of the centres of the moon, and of the earth's penumbra, is less than the sum of their semidiameters. For if the distance is greater, the moon and penumbra cannot touch one another.

695. An eclipse of the sun cannot happen unless the distance of the centres of the sun and moon, be less than the sum of their semidiameters, when seen from a certain place. That it shall appear in no place, the moon's parallax must be added to the sum of the semidiameters.

696. In lunar eclipses, therefore, the moon's latitude must be less than the sum of the semidiameters of the moon and of the earth's penumbral shadow, taken at the moon's orbit. And in solar eclipses, the moon's latitude must be less than the sum of the sun's and moon's semidiameters added to the moon's horizontal parallax; that the eclipse may be visible some way: or without the parallax, to be visible in a certain place.

697. Therefore in the right angled spherical triangle, plate IV, fig. 4, ☊ SM, having the angle ☊, and the distance SM, the distance of the sun from the node, ☊ S will be known, or the ecliptic limits. The mode of finding which, may be seen from the following

Example.

	°	′	″
Mean apparent semidiameter of the sun		16	4
Parallax of the sun			12
Mean apparent semidiam. of the moon		15	38
Parallax of the moon . . .		59	5
Inclination of the moon's orbit .	5	8	30
Hence will be obtained,			
The semidiameter of the earth's penumbra . . .	1	13	21
The semidiameter of the moon and earth's shadows . .		56	51
The semidiameter of the sun and moon		31	42
The same with the parallax .	1	28	47

In the triangle ☊ S M for the eclipse of the moon.

Here SM = 1° 13′ 21″ + 15 38″ = 1° 28′ 59″.

S. ☊ = 5 8½ . . .	8.952398
S.SM = 1 28 59 . . .	8.413067
Radius	10.
S. ☊ S = 16 47 . . .	9.460669

the limit for the lunar eclipse at a medium.

In the triangle ☊ S M for the eclipse of the sun.

Here S M = 1° 28′ 47″.

S. ☊, = 5 8½ . .	8.952398
S.S M = 1 28 47 . .	8.412009
Radius	10.
S. ☊.S. = 16 15 . . .	9.459611

the limit for the solar eclipse, in any place; about the same as for the lunar. But for a particular place, SM = 31 42; and S ☊ comes out only 5° 54′ for the limit.

698. 1. Hence there will at least be four eclipses in a year, taking one year with another; two of the moon, and two of the sun. For 16° 47′ + 16° 45 = 33° 32′ or 32½°. Therefore the sun stays above a month within the ecliptic limits twice in the year. During which time the moon makes two revolutions, and therefore must cause two eclipses, either time; one of the moon, and another of the sun.

699. 2. Half of the eclipses will, in general, be invisible at any given place. And consequently one year with another there can only be two visible eclipses in a year, the one lunar and the other solar. For the sun and moon spend as much time below the horizon as above it.

700. 3. The ecliptical limits may be found for total eclipses, as well as for partial ones, by the same method; i. e. by taking SM = the difference of the semidiameters of the earth's dark shadow and of the moon, in lunar eclipses; or = the difference of the semidiameters of the moon and sun, in solar eclipses.

701. 4. Eclipses do not always happen in the same places of the zodiac; but in places more and more westward. For the eclipses being about the nodes, and the nodes regressive at the rate of nineteen degrees in a year; the places of the eclipses are nineteen degrees more west every succeeding year.

702. From these premises it will be necessary, in calculating a particular eclipse, to consider the angle that the moon's way makes with the sun at the time of an eclipse. See plate XI. fig. 4. Let ☊ S be the ecliptic, ☊ M the moon's orbit, ☊ the node. And let S be the sun, in the solar eclipse; or the centre of the earth's shadow, in the lunar; and M the moon at the time of the syzygy. Take ☊ A to ☊ S as the sun's horary motion, to the moon's, at that time; draw MA, then MAS is the angle required; and AM the moon's apparent orbit.

703. For by construction, in the time that the moon has been moving from ☊ to M (that is, through ☊ S reckoned in the ecliptic,) the sun has moved through a space DS equal to ☊ A. Therefore the sun was in D, when the moon was in the node at ☊. Draw DB, MB parallel to S *m*, SD; and draw B ☊, which will be parallel to MA. Now since the moon makes the same latitude DB or SM, in the same time, whether the sun moves or stands still; and since SM is her latitude, when the sun is at S, DB (equal to SM) will be her latitude, supposing the sun had stood at D, without any motion towards S; and consequently ☊ B will be her apparent way, to an eye at D, through which she seems to move in the same time. Or, which is the same thing, AM will be her apparent way to an eye fixed at S.—For the triangles AMS are ☊ BD are equal; and MAS is the angle of her way with the ecliptic. By the theory of relative motions, in bodies moving the same way, all the apparent motions are the same, as if one body stood still and the other moved forward, with the difference of their motions. And here ☊ D or AS is the difference of their motions supposing S to be fixed

704. Hence, as the moon's horary motion: to the sun's horary motion :: S ☊ the distance from the node to A ☊. Then S A = S ☊ — A ☊. As sine of S A: rad :: tangent moon's latitude S M : tangent angle A.

705. It is the apparent orbit A M that must be made use of, in calculating all the particulars of an eclipse. For an observer considers not S as moving; and therefore only the relative motions are concerned. To calculate, therefore, an eclipse of the moon, the following rules will be found useful.

IV. Rules for Calculating Lunar Eclipses.

706. 1. Find the true time of the opposition, when an eclipse is to happen; and let that be reduced to apparent time.

707. 2. Find the true places of the sun and moon, when in opposition: 2. The sun's mean anomaly, and the place of his apogee: 3. The place of the moon's ascending node, and of her apogee, and her latitude.

708. 3. Let ☊ S, fig. 1, plate VIII. be a part of the ecliptic; ☊ M the moon's orbit; S the centre of the earth's shadow, and M the moon, when in opposition. Take ☊ A, to ☊ S which is known by calculation; as the sun's horary motion, to the moon's; which are known from the astronomical tables. Draw A M, for the way of the moon from the sun. Then in the right angled spherical triangle A S M, there is given A S (= ☊ S — ☊ A); and S M the moon's latitude found by calculation: to find the angle S M A.

709. 4. Let SP fall perpendicular to A M; then since the arches S M, M P, S P, are very small, they may be taken for right lines; and the triangle S M P for a plane triangle. Then having S M and angle S M P; M P and S P will be found, where P is the place of the moon in the middle of the eclipse. Likewise the time of the moon's moving through M P will be known by her horary motion; and from thence the time when she is at P, or the middle of the eclipse.

710. 5. From the astronomical tables, find the sun and moon's apparent semidiameters, for the time of opposition; and their horizontal parallaxes.

711. 6. From any convenient scale of equal parts, with the centre P and radius P B, equal to the minutes contained in the moon's radius, describe the circle B C *o* for the moon. And with the radius S D (equal to the sum of the sun and moon's horizontal parallaxes; the sun's semidiameter, all in minutes,) describe the circle D E B, from the centre S, then this circle will represent the earth's dark shadow. Likewise with the same centre S, and radius S F (equal to the sum of the sun and moon's parallaxes + the sun's semidiameter, in minutes,) describe the circle F Q G; and this will be the earth's penumbra.

712. 7. These rules being observed, it will be easy to find all the requisites by scale and compasses, by measuring them; or rather by calculation, in the several right-angled plain triangles, contained in the scheme. Thus, to find when the moon first touches the penumbra at I; in the right angled triangle S P K, there is given S P, and S K (the sum of the radii S I, and P B), to find P K. Which being known, the time of the moon's passing through it will be known, by the moon's horary motion from the sun.

713. To find when the moon first enters the dark shadow of the earth in D: in the right angled triangle S P I, there is given S P, and S I, (the sum of the radii S D, P B,) to find P I; and consequently the time of half the duration in the shadow.

714. To find the digits, or 12th parts of the moon eclipsed. Here *no* the part eclipsed is = S *n* + P *o* — S P; and $\frac{12\ no}{2\ Po}$ or $\frac{6\ no.}{Po}$ is the number of digits eclipsed. In total eclipses of the moon, the earth's shadow often reaches farther than the moon. And then more than twelve digits are said to be eclipsed, supposing the moon's disk to be produced so far.

715. To find the time when the moon wholly enters into the dark shadow B E D, follow the same method as when it entered into the penumbra G Q F. This will be evident, by supposing G Q L the dark shadow. In that case S I will be the difference of the semidiameters of the moon and dark shadow. The times of passing through P I, P K, &c. being known, and the time of the middle of the eclipse at P, the beginning and end will be known.

716. 8. Hence, if the moon or circle C B *o* never touches the circle G Q F, there will be no eclipse, not even by the penumbra. And if the same circle never touches the circle B D E, there will be no part of the moon totally eclipsed. And if the whole circle C B *o* enter into the circle B E D, the whole moon will be totally eclipsed; and that is when S P is less than the difference of the semidiameters S D and P B. If the point S be in the node, then P falls upon S, and the eclipse is central. When only a part of the circle C B *o* goes into the circle B E D, the eclipse is a partial one, as in this figure.

717. 9. The time of the eclipse being known for any particular place, it is easy to know if it be visible at that place, by knowing if the moon be risen. Or the place will be known where the moon is vertical; and therefore it will be visible to all places within a quadrant's distance from it.

718. 10. If the spectator live in the place, (or in the same longitude) which the tables are calculated for; he will see the eclipse at the time determined by the calculation. If not, he will see it an hour sooner for every 15° difference of longitude, that he lives west from it. And so much later, if he lives eastward; that is, in the way of reckoning time. But in regard to absolute time, it is seen from all places at the same instant.

Example.

To find the time of the Lunar Eclipse, December 13th, 1769; its Duration and Digits eclipsed.

719. 1. The mean time of the syzygies, by the tables, is found to be December 12d. 19h. 27m. at which time the moon's horary motion from the sun is 35′ 33″. At this time, computing the true places of the sun and moon, the moon will

appear to be 35 10″ before the sun. And therefore the time is past the syzygy, 59m. 12s. Therefore,

From	1d.	19h.	27m.	0s.
Take	0	0	59	12
True time	1	18	27	48

The places being computed again, the moon is only 7″ before the sun, which amounts to 12″ of time; therefore the time of opposition is 12d. 18h. 27m. 36s. which reduced to apparent time is December 12d. 18h. 32m 51s.

2. The sun's place is . .	8s.	21°	37′	35″
The moon's place . .	2	21	37	35
Place of the ascending node	8	14	46	13
Her latitude south . .			37	58
The sun's horary motion			2	33
The moon's horary motion			38	6

3. Hence the moon is 6° 51′ 22″ past the descending node: that is ☊ S is 6° 51′ 22″. Therefore ☊ A = 17′ 32″, and A S = 6° 23′ 50″. Therefore the angle S M A = 84° 22′ 28″.

4. Hence drawing the ecliptic R S, and S M perpendicular to it, and equal to 37′ 58″ from a scale of minutes, as in fig. 12, plate IX. and making the angle S M A = 84° 22½′. We find the perpendicular S P = 7′ 47″, and M P = 3′ 43″. And therefore, the horary motion of the moon from the sun being 35′ 33″, P M will be passed over in 6′ 17″. And since this is before the opposition at M, this time must be deducted from the time of opposition. And the time of the middle of the eclipse will be December 12d. 18h. 26m. 34s.

5. The sun's apparent semidiameter	16′	20″
His horizontal parallax		12
The moon's apparent semidiameter	16	48
Her horizontal parallax	61	7
6. Hence the radius B P =	16′	48″.
radius S D =	44	59.
radius S F =	77	39.
7. Hence also P K or P *k* =	86	34.
and P I or P *i* =	48	53.

and therefore the time of passing through P K is 2h. 26m. 6s., and through P I = 1h. 22m. 30s. And the whole duration in the shadow from I to *i*, is 2h. 45m. And the digits eclipsed 8½ on the upper side. Whence,

	D.	H.	M.	S.	
First entering the penumbra					
December . . .	13	4	0	28	morn.
Entering the dark shadow at	0	5	4	4	
Middle	0	6	26	34	
Opposition	0	6	22	51	
Leaving the shadow . . .	0	7	49	4	
Leaving the penumbra . .	0	8	52	40	
Duration	0	2	45	0	

Digits eclipsed 8½

720. All these calculations may be made sufficiently near, by scale and compasses, in a large draught; making use of a scale of minutes and sixtieth parts; or rather by making a scale of time answering thereto, by the help of the horary motion of the moon from the sun. For by this scale, the several hours and minutes may be marked along the line A *k*, by which it will appear at what time the centre of the moon is at any given point. For the time is known when the moon is at M, and from thence the points at each hour and minute are easily found. And this construction, with only right lines and circles, will be exact enough in a large figure; for the best lunar tables give the times of the phases of an eclipse no nearer than to four or five minutes of time; and therefore such a construction is sufficient to answer the purpose. Hence it may be observed, that no eclipse of the moon can last above five hours and a half from the moon's first touching the earth's penumbra, to its last leaving it. For S K = 94′ 27″ = 94·45, and the horary motion is 35′ 33″ = 35·55 and $\frac{94{\cdot}45}{35{\cdot}55} = 2{\cdot}66 = 2$h. 39m. = semiduration: and no eclipse of the moon, by the earth's shadow, can last above 3¾ hours. Nor when total, above 1¾ hours. For S I = 61′ 47″ = 61·78, and $\frac{61{\cdot}78}{35{\cdot}55} = 1{\cdot}745 = 1'\ 45'' =$ the semiduration, and S D − S I = 28′ 11″ = 28·18, and $\frac{28{\cdot}18}{35{\cdot}55}$ = ·79 = 47m. the semiduration.

721. The refraction of the earth's atmosphere, in lunar eclipses, makes the shadow less; by bringing the rays, which terminate the shadow, sooner to a point. And hence comes that red color of the moon even in total eclipses. But that light must be very dim, by reason of a great number of the rays being stopt and lost in the earth's atmosphere.

722. The circles terminating the shadow and the penumbra B E D and G Q F, cannot be distinguished. For the darkness from B E D, diminishes by insensible degrees, to G Q F, being darkest at E, and lightest at Q, where it vanishes insensibly. And therefore the moon does not appear to be eclipsed till she is a good way within the penumbra. For that reason, there may happen eclipses of the moon which cannot be discovered as such.

723. All lunar tables show the moon's place in eclipses, more truly in the syzygies than in the quadratures, or any other place. For the times of the syzygies, and the moon's place, have been more accurately observed in eclipses, than at any other time; and from thence the moon's theory has been deduced. Besides, many of the inequalities cease in the syzygies, but have sensible effects in other places; becoming greater, as the moon is further from the syzygies; being greatest in the quadratures. Whence the lunar tables do not determine the moon's place truly in the quadratures. And her place calculated from these tables is not so exact in the quadratures as in the syzygies.

724. Several inequalities depend on the aspect of the nodes and the sun; but these cease when the nodes are in the syzygies. When the moon and the nodes are in the syzygies, the moon's place, then wanting fewer equations, as being subject to fewer inequalities, will be more correct than when she is in other places, where there are more and greater inequalities, and more equations. From hence more errors will happen out of the syzygies than in them.

V.—To find the way of the Moon from the Sun, in a Solar Eclipse, supposing the Observer at rest.

725. Let H Z O, in plate IX. fig. 6, be the meridian of the place, H O the horizon, E C the equinoctial, E L the ecliptic, Z the zenith, P the pole, S and M the places of the sun and moon in conjunction, P S D the sun's meridian. Having found the sun's distance from the node, ☊ S, and the moon's latitude S M, &c. take ☊ A ☊ to S, as the sun's horary motion to the moon's horary motion; then S A is known. Draw M A; then in the spherical triangle A S M, right angled at S, there is given S A, S M; to find the angle S M A; A M being the moon's way from the sun.

726. But, as the eye of the observer is in motion, by the rotation of the earth, which gives an apparent motion to the moon, contrary to that of the observer, we must find the quantity and direction of that motion. As the observer is carried eastward, towards the point C, the apparent motion of the moon caused thereby will be in the line C S. And to determine the position of C S, in respect of A M or S M, several spherical triangles must be resolved, as follows:

727. In the right-angled triangle E D S there is given E S, and angle E to find D S, and angle E S D or A S P; or these may be easier had from the astronomical tables. And in the triangle Z P S, there is given P S (the complement of D S), the angle Z P S (from the time of the day), and Z P the complement of the latitude; to find Z S, and angles P Z S and Z S P. Then Z S P and A S P being known, Z S A will be known. And M S A being a right angle, Z S M will be known. In the right angled triangle C F S, there is given C F, the measure of the angle F Z C (the difference between the angle P Z S and the right angle C Z P), and S F the complement of Z S; to find C S, and the angle C S F or B S Z. Then B S Z and Z S M being known, B S M will be known. And S M A being known, its supplement S M B is known, and consequently the angle S B M.

728. To find the quantity of the motion. That along A M is already known; and to find the apparent motion along S B. The sine of 15° (the horary motion of a point in the equinoctial), is ·259 to the radius 1. And if h be the moon's horizontal parallax, then the radius of the earth appears at the moon under the angle h, and therefore 15° of the equinoctial appears under the angle of ·259 h; this then is the horary motion of a point in the equinoctial, viewed directly from the moon. And the moon's apparent motion seen from that point in the equinoctial is the very same. But this motion is to be diminished upon two accounts. 1. Because it is less in a parallel circle, in proportion to the cosine of the latitude. And 2. Upon account of the obliquity of the motion, when not perpendicular to the rays of the sun; and this will be as the sine of C S, the sun's distance from the east or west point of the horizon. Therefore to find the quantity of this motion.

To the logarithm of ·255 h.
Add the cosine latitude.
And the sine of C S.

Then the sum, abating twice radius, is the logarithm of this apparent horary motion. Then this motion is to be compounded with the motion along A M B as follows:

729. Let A S, plate IX. fig. 5, be a portion of the ecliptic, S B the way of the apparent motion, M A the moon's way from the sun. Draw N M parallel to S B; and let M N be the horary motion along S B or M N, and M I the horary motion of the moon from the sun. Then complete the parallelogram N M I Q; draw the diagonal M Q R, which is the direction of the motion, compounded of the observer's and the moon's motions, and M Q is the total apparent horary motion, supposing the observer at rest. Then in the plain triangle Q M I, there is given M I, and I Q (or M N), and the angle M I Q = M B S; to find the angle Q M I, and side M Q or the absolute horary motion. And the angles Q M I and I M S being known, Q M S is known.

730. If the sun be in the eastern hemisphere, in which case the concave side of the eastern hemisphere is here projected (in fig. 6), then the moon's motion from the sun is from M towards A, and the other apparent motion from S towards B, or from M towards N. But if the sun is in the western hemisphere, this projection represents the convex side of the sphere; and then the moon moves from the sun, in direction A M, and the other apparent motion is from S towards C being contrary.

VI.—To Calculate Solar Eclipses.

731. The eclipses of the sun are more difficult to calculate than those of the moon; the latter being clear of parallaxes, which the former are incumbered with, which gives a great deal of trouble. But a great part of it may be avoided by using projections instead of calculations. The rules are,

732. 1. Find the true time of the conjunction, and the places of the sun and moon at that time.

733. 2. Having found the way of the moon from the sun by projection or calculation; find, by the astronomical tables, the moon's horizontal parallax, her apparent diameter, and horary motion, also the sun's apparent diameter and horary motion. But, to avoid a great deal of calculation, if the sphere be projected by a large scale, it will give all the requisites with sufficient exactness, by measuring the several angles and sides, without any calculation, or very little. And here it is best to project the concave side, and then every thing appears as it is in nature.

734. 3. Find the moon's parallax of altitude, by making as rad. : cos. altitude : : so the moon's horizontal parallax : to her parallax of altitude V t or M m. fig. 8. Then find her parallax of latitude M m, and longitude S s, or m n, and from thence her apparent latitude and longitude is known.

735. 4. Draw the line S L, fig. 10, for the ecliptic, and from a large scale of minutes, erect S M perp. to L S, and equal to the apparent latitude; make the angle S M R, as found in the last prob. and draw ☊ M R for the moon's apparent path. From S let fall S P perpendicular to M R, and S P will be the least distance of the centres of the sun and moon, or the middle of

the eclipse. From the centre S, with the radius equal to the minutes contained in the sun's semidiameter, describe the circle A B C for the sun. And from the centre P, with the radius equal to the moon's semidiameter, describe the circle A O C D for the moon. If these circles do not intersect, there will be no eclipse. But if they intersect, an eclipse must necessarily happen.

736. 5. Then P is the place of the moon in the middle of the eclipse. Make S I and S K equal to the sum of the semidiameters of the sun and moon; and the moon's centre will be at I when the moon first touches the sun, or at the moon's centre, at the end of it. In the triangle P S I, there is given SI, S P; to find P I = P K, which reduced to time by help of the moon's apparent horary motion, shews half the duration of the eclipse; and consequently we shall have the beginning and end.

737. 6. And to find the quantity $n\,o$, or the digits eclipsed; we have $n\,o = Sn + Po - SP$, and $\frac{6\,n\,o}{P\,o}$ = number of digits.

738. 7. The time found being mean time, it must be reduced to the common or apparent time, by the equation of time. And if the given place be not that for which the tables are made, add so much time, if the place lie eastward, to the time of conjunction, as answers to the difference of meridians; or subtract it if it lie westward.

Example.

To Find the Time of the Sun's Eclipse, June 4, 1769, its Duration and Digits eclipsed at London.

739. 1. By the tables the mean time of the conjunction is found to be June 2d. 20h. 41m. And hence, the true time of conjunction is June 3d. 20h. 27m. 43s. And their places are 2ˢ 13° 51 25″. And the moon's lat. 55·32 north. The moon's motion from the sun 35′ 47″.

2. In fig. 5 and 6, Plate IX. the angle A M S = 84° 47′. Z S M = 35° 20′. C S F = 5° 18′ S B M = 43° 49′. S F = 42° 16′, C F = 3° 34′. C S = 42° 24′. The angle Q M I = 8° 25′. S M Q = 92° 52′. M N or I Q = 6° 38′. M Q = 31° 20′. Also

The moon's horizontal parallax . .	60′ 58″
Her apparent diameter	33 32
Her horary motion	38 10
The sun's diameter	31 41
His horary motion	2 23

3. In fig. 4, the moon's parallax in altitude M *m* is 45′ 09″; her parallax in latitude M *n*, 38′ 05″; her remaining latitude S *n*, [illegible]; her parallax in longitude S *s*, 24′ 1[illegible] increased so much.

4. Draw S L for the ecliptic, [illegible] any point S, erect [illegible] 26″, the moon's [illegible] draw the [illegible] S M R = [illegible] here fall [illegible]

of 31′ 20″ an hour, is 52′ 45″ for the semiduration. By reason of the parallax (24′ 13″), she is past the apparent conjunction; the difference being what the parallax causes, which comes to 47′ 23″. Therefore the middle of the eclipse is so much sooner, being at 3d. 19h. 41m. 20s. This reduced to apparent time is 3d. 19h. 43m. 27s. for the middle.

6. The digits eclipsed are 5 $\frac{4}{10}$, nearly.

740. In this example, the concave side of the sphere is projected, which suits best to the appearance of the heavens. And the figures are drawn upon that supposition. It appears from the process, that the moon is advancing to her descending node, and therefore has north latitude. And by the position of that part of the ecliptic, her parallax in longitude, advances her so much forward, viz. 24′ 13″. And therefore she is so much past the apparent conjunction. Hence we gain these several particulars, as to the eclipse:

	D.	H.	′	″
741. 1. The begin. June, morn.	4	6	53	42
middle	4	7	43	27
end	4	8	46	12
total duration . . .		1	45	30

digits eclipsed 5$\frac{4}{10}$, on the upper side of the sun, towards the left; as appears by the figure.

742. 2. Hence the position of the horns at C and A, are easily found in the middle of the eclipse. For they are in a position parallel to R I, the moon's way.

743. 3. The middle of the eclipse will not be at the same time in all places of the same longitude; for the parallax of longitude will be different in different places.

744. No eclipse of the sun can last above two hours. For S I or S A + M D = 32′ 26″ = 32.6 and the horary motion = 34′ 47″ = 35.78. And $\frac{32.6}{35.78}$ = ·91 = 54$\frac{1}{2}$ minutes, for the semiduration.

745. If it were not for the parallax, eclipses of the sun would be as easily calculated as those of the moon. And in order to get the parallax, the angle Z S M and S P must be known, fig. 2, which occasions the resolving several spherical triangles before they can be had. Likewise it may be observed, that the apparent way of the moon is strictly curve line, concave towards S, which arises from the parallel of latitude being a curve, and the moon being out of its plane. Likewise the moon's apparent velocity is something greater at the beginning than at the end.

VI.—Rules for calculating a General Eclipse of the Sun.

[illegible]lements necessary for this are: 1. [illegible] moon's place, and the time at the [illegible]on; 2. The moon's latitude, hori[illegible]x, diameter, and horary motions; [illegible]eclination, diameter, and horary [illegible]4, the angle the moon's way makes [illegible]f latitude.

[illegible]om a large scale of minutes, take [illegible]orizontal parallax in the compasses, [illegible]oint C, in the right line B D, (which [illegible]e ecliptic in plate XI. fig. 6), de[illegible]cle A B E D, for the earth's disk, or [illegible]t face as it appears at a distance, in

a line drawn to the sun. Draw C M perpendicular to C D, and equal to the latitude of the moon upwards, if north. Make the angle C M G equal to that which the moon's way makes with a circle of latitude; acute to the right hand, if she tend to the node; or obtuse, if she be past it; and drawing F M G, it will be the way of the centre of the moon's shadow upon the earth. From C let fall C H perpendicular to F G. Then at H will be the middle of the earth's eclipse.

748. 3. With the centre H, and radius H O, equal to the sum of the semidiameters of the sun and moon, describe the circle Q O R, which will be the moon's penumbra. Also describe a small circle round the centre H, whose radius is the difference of the sun and moon's semidiameters, that little circle will be the dark shadow of the moon. Then all the countries of the earth contained in the segment V A W will be successively eclipsed by the penumbra, as the shadow moves along the tract F G; while the other segment V E W suffers no eclipse at all. All places in the line *s t* will be totally eclipsed, as the dark shadow, or the small circle at H passes successively over them. But this circle, or dark shadow, being very small, a total eclipse at any place continues but a small time. Sometimes the sun's semidiameter exceeds the moon's; and then there will be no dark circle, or total eclipse, but a lucid ring will appear about the moon in these places, and this is called an annular eclipse. The difference between the semidiameters of the sun and moon is so little, that no total eclipse lasts above four minutes.

749. 4. Draw C F, C G = sum of the semidiameters of the sun and moon, and the moon's parallax; then the moon's shadow will touch the earth at L and K, where the eclipse begins and ends. In the triangle C F H, there is given C F, C H; to find F H = H G, which, converted into time, gives half the duration, or half the time that the moon's shadow is upon the earth. Also N O measured, shews how far the eclipse reaches; or C O measured, does the same. It may be sufficient to measure all these by the scale without calculation.

750 5. To find the pole. Draw the arch A P, making the angle K A P equal to the sun's longitude, and A P the distance of the poles of the equator and ecliptic, 23½; then P is the pole. For A P is a part of the solstitial colure, and passes through Cancer and Capricorn. And C A P is what the sun wants of Cancer, therefore P A K is what it is past Aries. Through P draw C P T. And here we may suppose that the pole P is fixed during the time of an eclipse. Then in the right angled spherical triangle A P T, there is given A P and the angle A, to find A T or angle A C P. In this triangle P T is the sun's declination, and A P T or C P K his right ascension from Cancer. Here note, that any place in the line C T is in the sun's meridian; and C is the place where the sun is vertical at the time of the eclipse.

751. 6. To find the situation of any given place, at a given hour. Make the angle C P X (with the sun's meridian), equal to the time from noon; on the left hand, if it is before noon. And make P Z the complement of the latitude; then Z is the place required. And if it falls in the penumbra, it is eclipsed; or anywhere in the segment V A W; if its motion in the parallel circle does not carry it out, before the penumbra reaches it.

752. 7. To find the place which is first or last touched by the penumbra, as K. Draw the arch P K. In the triangle G C A, there are given C G and C H, to find the angle G C H, from which subtract H C P which is known, gives the angle P C K or T K. Then in the right-angled spherical triangle P T K, there is given T K, and P T the sun's declination; to find P K the complement of the latitude of K, and T P K or C P K the difference of longitude of K, and the sun.—Therefore its longitude and latitude is obtained. In the same manner may be found that of L. And by the same method the latitude and longitude of the places *s* and *t* may be found, where the dark shadow first enters the earth's disk, or quite leaves it. Thus also may be found the place which is in the line F H, at any point of time: or if the place be given, what the time will be; and that by help of the horary motion, with other particulars of like nature.

753. 8. The part of the sun's diameter eclipsed by the moon, is known by the situation of the place within the penumbra, or its distance from the centre of the penumbra. And the phasis of the eclipse, as seen from any place Z, upon the disk, will be found thus, for any time. Find the centre of the shadow for that time, as suppose at H. Describe about H, a circle, whose radius is the moon's radius, and about Z, a circle with the sun's radius. Then the part cut off the sun's circle will be the part obscured.

Sect. VIII.—Remarks on Eclipses in general.

754. In eclipses of the moon, even when she is near the centre of the earth's shadow, her body is still visible, and appears of a tarnished copper color. This seems to be occasioned by the rays of light which come from the sun, and which, passing near the earth, are inflected from their rectilinear course by our atmosphere; so that they enter the earth's conical shadow, thus producing that faint illumination on the surface of the moon, which some have supposed to be her own native light; but there seems to be no just ground for such a conjecture.

755. In most solar eclipses, the moon's disk is covered with a faint light, which is attributed to the reflection of the light from the illuminated part of the earth; and in total eclipses, the moon's limb is seen surrounded by a pale circle of light: which some astronomers consider as an indication of a lunar atmosphere, but others as the atmosphere of the sun; because it is observed to move equally with the sun, but not with the moon.

756. Eclipses have in all ages greatly attracted the attention of mankind. The ignorant and superstitious have viewed them with terror, and in former ages they were often considered as the forerunners of national calamities. The Chinese, even at the present day, upon their appearance, perform the most absurd and superstitious ceremonies, although they are so far acquainted with their nature, as to be able to predict them. See China. But true philosophy has taught us, that

instead of these appearances being portentous of evil to mankind, they may, by proper observations upon them, be made of great advantage to the sciences, and to some of the arts of life.

757. We have already shewn, that, by eclipses of the moon, the earth is demonstrated to be a globular figure. The longitudes of places on the earth are also determined by observations on solar and lunar eclipses; as will appear by consulting the articles GEOGRAPHY, LONGITUDE, NAVIGATION, &c. Eclipses are also of great importance in CHRONOLOGY, (which see), as by them we are enabled to determine exactly the time when events recorded in history happened.

758. From the observations made upon the ancient eclipses, it appears that the period of the moon is now shorter, and consequently that her distance from the earth is now less, than in former ages; and this has been considered as an argument against those who assert, that the world may have existed from eternity; for it was hence inferred, that the moon moves in a resisting medium, and therefore that her motion must by degrees be all destroyed, in which case she must at last come to the earth. But M. de La Place has shewn, that this acceleration of the moon's period is a necessary consequence of universal gravitation, and that it arises from the action of the planets upon the moon. He has also shewn that this acceleration will go on, till it arrive at a certain limit, when it will be changed into a retardation; or in other words, that there are two limits, between which the lunar period fluctuates, but neither of which it can pass.

759. M. de La Grange has also discovered, that all the seeming irregularities in the motions of our system are periodical; so that although the obliquity of the ecliptic, the eccentricities of the planetary orbits, the precession of the equinoxes, the length of the year, &c. may change, yet these changes will not pass certain limits, and after stated periods, they will return precisely to what they had formerly been. Some of these periods, however, may be very long. The acceleration of the moon, for example, has been going on from the earliest ages of astronomy to the present day.

760. We cannot close this section, without observing, that eclipses happen very frequently to all the satellites of Jupiter; and, as they are of great service in determining the longitude of places on the earth, astronomers have been at pains to calculate tables for the eclipses of these satellites by their primary; for the satellites themselves have never been observed to eclipse one another. But this falls more properly to be considered under the articles GEOGRAPHY, and LONGITUDE, to which the reader is therefore referred.

761. The primary planets would also eclipse one another, were it not for their great distances; but, as the comets are not subject to the same laws with the planets, it is possible they may sometimes approach so near to the primary planets, as to cause an eclipse of the sun to those planets; and as the body of a comet bears a much larger proportion to the bulk of a primary planet than any secondary, it is plain, that a cometary eclipse would both be of much longer continuance, and attended with greater darkness, than that occasioned by a secondary planet. If we suppose the primary planet and comet to be moving both the same way, the duration of such an eclipse would be prodigiously lengthened; and thus, instead of four minutes, the sun might be totally darkened to the inhabitants of certain places for as many hours: and, from this cause, some account for that prodigious darkness, which we sometimes read of in history, at times when no eclipse of the sun by the moon could possibly happen.

PART V.

ASTRONOMICAL MACHINERY AND INSTRUMENTS.

SECT. I.—DESCRIPTION OF THE ASTRONOMICAL MACHINERY INVENTED FOR ILLUSTRATING THE SCIENCE.

762. The Grand Orrery, a very magnificent machine, first made in this kingdom, by Mr. Rowley, for king George I. is represented in plate XII. fig. 1. The frame of it, which contains the wheel-work, &c. and regulates the whole machine, is made of ebony, and about four feet in diameter. Above the frame is a broad ring, supported with twelve pillars, which represents the plane of the ecliptic. Above the ecliptic, stand some of the principal circles of the sphere, viz. No. 10, are the two colures divided into degrees, and half degrees; No. 11, is one half of the equinoctial circle, making an angle of $23\frac{1}{2}°$. The tropic of Cancer, and the arctic circle, are each fixed parallel, at their proper distance from the equinoctial. On the northern half of the ecliptic, is a brass semicircle, movable upon two points, fixed in ♈ and ♎, representing the movable horizon to be put to any degree of latitude upon the north part of the meridian, and the whole machine may be set to any latitude, without disturbing any of the internal motions, by two strong hinges, (No. 13.) fixed to the bottom-frame, upon which the instrument moves, and a strong brass arch, having holes at every degree, through which a strong pin is put at every elevation. This arch, and the two hinges, support the whole machine, when it is lifted up, according to any latitude; and the arch, at other times, lies conveniently under the bottom frame.

763. The sun, (No. 1.) stands in the middle of the whole system, upon a wire, making an angle with the ecliptic, of about 82°. Next the sun is a small ball, (2), representing Mercury. Next to Mercury is Venus, (3), represented by a larger ball. The earth is represented (No. 4), by an ivory ball, having some circles and a map sketched upon it. The wire which supports the earth, makes an angle with the ecliptic, of $66\frac{1}{2}°$, the inclination of the earth's axis to the ecliptic. Near the bottom of the earth's axis is a dial plate, (No. 9.) having an index, pointing to the hours of the day, as the earth turns round its axis. Round the earth is a ring supported by two small pillars, representing the orbit of the moon; and the divisions upon it answer to the moon's latitude. The motion of this ring represents the motion of the moon's orbit, according to that of the nodes. Within this ring is the moon, (No. 5), having a black cap or case, by

which its motion represents the phases of the moon, according to her age. Without the orbits of the earth and moon, is Mars, (No. 6.) The next in order to Mars is Jupiter, and his four moons, (No. 7.) Each of these moons is supported by a wire fixed in a socket, which turns about the pillar supporting Jupiter. These satellites may be turned by the hand to any position, and yet, when the machine is put into motion, they will all move in their proper times. The outermost of all is Saturn, his five moons, and his ring, (No. 8.) These moons are supported and contrived, similar to those of Jupiter.

764. The machine is put in motion, by turning a small winch, (No. 14); and the whole system is also moved by this winch, and by pulling out, and pushing in, a small cylindrical pin above the handle. When it is pushed, all the planets, both primary and secondary, will move according to their respective periods, by turning the handle. When it is drawn out, the motions of the satellites of Jupiter and Saturn will be stopped, while all the rest move without interruption. There is also a brass lamp, having two convex glasses, to be put in room of the sun; and also, a smaller earth and moon, made somewhat in proportion to their distance from each other, which may be put on at pleasure. The lamp turns round at the same time with the earth, and the glasses of it cast a strong light upon her; and when the smaller earth and moon are placed on, it will be easy to show when either of them will be eclipsed.

765. Mr. Ferguson's orrery, plate XII. fig. 2, shows the motions of the Sun, Mercury, Venus, Earth, and Moon; and occasionally the superior planets, Mars, Jupiter, and Saturn may be put on. Jupiter's four satellites are put round him in their proper times, by a small winch; and Saturn has his five satellites, and his ring, which keeps its parallelism round the sun; and by a lamp put in the sun's place, the ring shows all its various phases already described. In the centre, No. 1, represents the sun; No. 2, Mercury; No. 3, Venus; No. 4, the earth; No. 6, is a siderial dial-plate under the earth; and No. 7, a solar dial-plate on the cover of the machine. The index of the former shows siderial time, and of the latter, solar time.

766. The earth always keeps opposite to a moving index, (No. 10), which shews the sun's daily change of place, and also the days of the months. The earth is half covered with a black cap, for dividing the apparently enlightened half next the sun, from the other half, which, when turned away from him, is in the dark. The edge of the cap represents the circle bounding light and darkness, and shows at what time the sun rises and sets to all places throughout the year. The earth's axis inclines $23\frac{1}{2}°$ from the axis of the ecliptic; by which means, the different lengths of days and nights, and the cause of the various seasons, are demonstrated to sight.

767. There is a broad horizon, to the upper side of which is fixed a meridian semicircle, in the north and south points. From the lower side of this thin horizontal plate stand out four small wires, to which is fixed a twilight-circle, eighteen degrees from the graduated side of the horizon, all round. This horizon may be put upon the earth (when the cap is taken away), and rectified to the latitude of any place; and then by a small wire, called the solar ray, which may be put on, so as to proceed directly from the sun's centre towards the earth's, but to come no farther than almost to touch the horizon. The beginning of twilight, time of sun rising, with his amplitude, meridian altitude, time of setting, amplitude then, and end of twilight, are shown for every day of the year, at that place to which the horizon is rectified.

768. The moon, (No. 5.) exhibits all the phases already described. When the horizon is rectified to the latitude of any given place, the times of the moon's rising and setting, together with her amplitude, are shown to that place, as well as the sun's; and all the various phenomena of the harvest moon are made obvious to sight. The moon's orbit, (No. 9.) is inclined to the ecliptic, (No 11.) one half being above, and the other below it. The nodes, or points at ☊ and ☋, lie in the plane of the ecliptic, as before described, and shift backward, through all its sines and degrees, in $18\frac{2}{3}$ years.

769. The degrees of the moon's latitude, to the highest in N L, (north latitude,) and lowest at S L, (south latitude,) are engraven both ways from her nodes at ☊ and ☋; and, as the moon rises and falls in her orbit, according to its inclination, her latitude and distance from her nodes are shown for every day, having first rectified her orbit, so as to set the nodes to their proper places in the ecliptic; and then, as they come about, at different, and almost opposite times of the year, and then point towards the sun, all the eclipses may be shown for hundreds of years (without any new rectification), by turning the machinery backward, for time past, or forward for time to come.

770. At 17° distance from each node, on both sides, is engraved a small sun; and at 12° distance a small moon, which show the limits of solar and lunar eclipses; and when, at any change, the moon falls between either of these suns and the node, the sun will be eclipsed on the day pointed to by the annual index, (No.10). And when at any full, the moon falls between either of the little moons and node, she will be eclipsed, and the annual index shows the day of that eclipse. There is a circle of $29\frac{1}{2}$ equal parts (No. 8) on the cover of the machine, on which an index shows the days of the moon's age. There is a jointed wire, of which, one end being put into a hole in the upright stem that holds the earth's cap, and the wire laid into a small forked piece which may be occasionally put upon Venus or Mercury, shows the direct and retrograde motions of these two planets, with their stationary times and places, as seen from the earth. The whole machinery is turned by a winch, (No. 12) and is so easily moved, that a clock might turn it, without any danger of stopping.

771. Mr. Jones's Planetarium, plate XI. fig. 1, represents in a general manner, by various parts of its machinery, all the motions and phenomena of the planetary system. This machine consists of, the Sun in the centre, with the planets, Mercury, Venus, the Earth and Moon,

Mars, Jupiter and his four moons, Saturn and his five moons; and to it is occasionally applied an extra long arm for the planet Herschel and his two moons. To the earth and moon is applied a frame C D, containing only four wheels and two pinions, which serve to preserve the earth's axis in its proper parallelism in its motion round the sun, and to give the moon her due revolution about the earth at the same time. These wheels are connected with the wheel-work in the round box below, and the whole is set in motion by the winch H. The arm M, which carries round the moon, points out on the plate, B, her age and phases for any situation in her orbit, and which accordingly are engraved thereon. In the same manner the arm points out her place in the ecliptic B, in signs and degrees, called her geocentric place. The moon's orbit is represented by the flat rim A; the two joints of which, and upon which it turns, denoting her nodes. This orbit is made to incline to any desired angle. The earth of this instrument is usually made of a three inch or 1½ globe, papered, &c. for the purpose; and by means of the terminating wire that goes over it, points out the changes of the seasons, and the different lengths of days and nights more conspicuously. This machine is also made to represent the Ptolemaic system, or such as is vulgarly received; which places the earth in the centre, and the planets and sun revolving about it. This is done by an auxiliary small sun and an earth, which change their places in the instrument.

772. The true causes of the solar and lunar eclipses are here very clearly seen; for by placing the lamp, fig. 5, plate XI., upon the centre, instead of the brass ball denoting the sun, and turning the winch until the moon comes into a right line between the centres of the lamp (or sun) and the earth, the shadow of the moon will fall upon the earth On the other side, the moon passes (in the aforesaid case) through the shadow of the earth, and is by that means eclipsed. And the orbit A, fig. 1, is so movable on the two joints called nodes, that any person may easily represent the due position of the nodes and intermediate spaces of the moon's orbit; and thence show when there will, or will not be, an eclipse of either luminary, and what the quantity of each will be. While the moon is continuing to move round the earth, the lamp on the centre will so illuminate her, that all her phases, as new, dichotomised, gibbous, full, waning, &c. will be seen just as they appear in the heavens. All the same phases of the earth, as they appear at the moon, will also be exhibited. The satellites of Jupiter and Saturn are movable only by the hand; yet all their phenomena may be easily represented, excepting the true relative motions and distances.

773. The Trajectorium Lunare, fig. 8, plate XIII, is intended, by delineating the paths of the earth and moon, to show what sort of curves they make in the ethereal regions. S is the sun, and E the earth, whose centres are ninety-five inches distant from each other; every inch answering to 1,000,000 of miles. M is the moon, whose centre is $\frac{24}{100}$ parts of an inch from the earth's in this machine, this being in just proportion to the moon's distance from the earth. A A is a bar of wood, to be moved by hand round the axis *g*, which is fixed in the wheel Y. The circumference of this wheel is to the circumference of the small wheel L, below the other end of the bar, as 365¼ days to 29½, or as a year is to a lunation. The wheels are grooved round their edges, and in the grooves is the catgut string G G, crossing between the wheels at X. On the axis of the wheel L, is the index F, in which is fixed the moon's axis M, for carrying her round the earth E, fixed on the axis of the wheel L in the time that the index goes round a circle of 29½ equal parts, which are the days of the moon's age. The wheel Y has the months and days of the year all round its limb; and in the bar A A is fixed the index *l*, which points out the days of the months answering to the days of the moon's age, shewn by the index F, in the circle of 29½ equal parts at the other end of the bar. On the axis of the wheel is put the piece D, below the cock C, in which this axis turns round; and in D are put the pencils *e* and *m*, directly under the earth C and moon M; so that *m* is carried round *e* as M is round E.

774. Lay the machine on an even floor, pressing gently on the wheel Y, to cause its spiked feet (of which two appear at P, the third being supposed to be hid from the sight by the wheel) to enter a little into the floor to secure the wheel from turning. Then lay a paper about four feet long under the pencils *e* and *m*, cross-ways to the bar; which done, move the bar slowly round the axis *g* of the wheel Y; and as the earth E goes round the sun S, the moon M will go round the earth with a duly proportioned velocity; and the friction wheel W, running on the floor, will keep the bar from bearing too heavily on the pencils *e* and *m*, which will delineate the paths of the earth and moon. As the index I points out the days of the months, the index F shows the moon's age on these days, in the circle of 29½ equal parts. And, as this last index points to the different days in its circle, the like numeral figures may be set to those parts of the curves of the earth's and moon's paths, where the pencils *e* and *m* are at those times respectively, to shew the places of the earth and moon. If the pencil *e* be pushed a very little off, as if from the pencil *m*, to about $\frac{1}{10}$ part of their distance, and the pencil *m* pushed as much towards *e* to bring them to the same distances again, though not to the same points of space; then *m* goes round *e*, *e* will go as it were round the centre of gravity between the earth *e* and moon *m*; but this motion will not sensibly alter the figure of the earth's path or that of the moon's.

775. If a pin, as *p*, be put through the pencil *m*, with its head towards that of the pin *q*, in the pencil *e*, its head will always keep thereto as *m*, goes round *e*, or as the same side of the moon is still obverted to the earth. But the pin *p*, which may be considered as an equatorial diameter of the moon, will turn quite round the point *m*, making all possible angles with the line of its progress, or line of the moon's path. This is

an ocular proof of the moon's turning round her axis.

SECT. II. OF THE PRINCIPAL INSTRUMENTS USED FOR MAKING ASTRONOMICAL OBSERVATIONS.

776. In practical astronomy it is necessary to have a place conveniently situated, and suitably furnished with proper astronomical instruments. It should have an uninterrupted view from the zenith down to, or even below, the horizon, at least towards its cardinal points. For this purpose that part of the roof in particular which lies in the direction of the meridian, should have moveable covers, which may easily be moved and put on again; by which means an instrument may be directed to any point of the heavens between the horizon and zenith, either northward or southward. This place, called an observatory, should contain some, if not all, of the following instruments:

777. 1. A pendulum clock for showing equal time. This should show time in hours, minutes, and seconds; and with which the observer, by hearing the beats of the pendulum, may count them by his ear, while his eye is employed on the motion of the celestial object he is observing. Just before the object arrives at the position described, the observer should look on the clock and mark the time, suppose it 6h. 15min. 25sec.; then saying, 25, 26, 27, 28, &c. responsive to the beat of the pendulum, till he sees through the instrument the object arrived at the position expected; which suppose to happen when he says 38, he then writes down 9h. 15m. 38sec. for the time of observation, annexing the year and the day of the month.

778. 2. An achromatic refracting telescope, or a reflecting one, of two feet at least in length, for observing particular phenomena. See the description under OPTICS.

779. 3. A micrometer, for measuring small angular distances. See MICROMETER

780. Astronomical quadrants, both mural and portable, for observing meridian and other altitudes of the bodies.

781. 4. The mural quadrant, so called from murus a wall: it is in the form of a quarter of a circle, contained under two radii at right angles to one another, and an arch equal to one fourth part of the circumference of the circle. This is the most useful and valuable of all the astronomical instruments; and, as it is sometimes fixed to the side of a stone or brick wall, and the plane of it erected exactly in the plane of the meridian, it receives the name of mural quadrant. Tycho Brahe was the first person who applied this arch to a wall; and Flamsteed the first in England who, with indefatigable pains, fixed one up in the royal observatory at Greenwich.

782. Mural quadrants have usually been made from five to eight feet radius. Fig. 1, plate XIII. represents the instrument fixed to the wall. The frame is formed of flat bars, and strengthened by edge bars, fixed underneath perpendicular to them. The radii H B, A A, being divided each into four equal parts, serve to find the points D and E, by which the quadrant is freely suspended on its iron supports, that are fastened in the wall. One of the supports, E, is represented separately in *e* on one side of the quadrant. It is moveable by means of a long slender rod E E or *e f*, which goes into a hollow screw in order to restore the instrument to its situation when it is discovered to be a little deranged. This may be known by the very fine perpendicular thread H A, which ought always to coincide with the same point A of the limb, and carefully examined to be so by a small magnifying telescope at every observation.

783. In order to prevent the unsteadiness of so great a machine, there should be placed behind the limb four copper ears with double cocks, I, K, I, K. There are others along the radii H A and H B; each of these cocks contains two screws, into which is fastened the ears that are fixed behind the quadrant. Over the wall or stone which supports the instrument, and at the same height as the centre, is placed horizontally the axis P O, which is perpendicular to the plane of the instrument, and which would pass through the centre if it was continued. This axis turns on two pivots P. On this axis is fixed at right angles another branch, O N, loaded at its extremity with a weight, N, capable of equipoising with its weight that of the telescope L M; whilst the axis, by its extremity nearest the quadrant, carries the wooden frame P R M, which is fastened to the telescope in M. The counterpoise takes off from the observer the weight of the telescope when he raises it, and hinders him from either forcing or straining the instrument. The lower extremity, V, of the telescope, is furnished with two small wheels, which take the limb of the quadrant on its two sides. The telescope hardly bears any more upon the limb than the small friction of these two wheels; which renders its motion so extremely easy and pleasant, that by giving it with the hand only a small motion, the telescope will run of itself over a great part of the limb, balanced by the counterpoise N.

784. When the telescope is to be stopped at a certain position, the copper hand T is to be made use of, which embraces the limb and springs at the bottom. It is fixed by a setting screw, which fastens it to the limb. Then, in turning the regulating screw, the telescope will be advanced; which is continued until the star, or other object whose altitude is observing, be on the horizontal fine thread in the telescope. Then on the plate X, supporting the telescope, and carrying a vernier or nonius, will be seen the number of degrees and minutes, and even quarter of minutes, that the angular height of the object observed is equal to. The remainder is easily estimated within two or three seconds nearly.

785. There are several methods of subdividing the divisions of a mural quadrant, which are usually from five or ten minutes each; but that which is most commonly adopted is by the vernier or nonius, the invention of Peter Vernier, a Frenchman. This vernier consists of a piece of copper or brass, C D A B, fig. 6, which is a small portion of X, fig. 1, represented separately. The length, C D, is divided into twenty equal parts, and placed contiguously on a portion of the division of the limb of the quadrant,

containing twenty-one divisions, and thereby dividing their length into twenty equal parts. Thus the first division of the vernier piece marked 15, beginning at the point D, is a little backward, or to the left of the first division of the limb, equal to 15″.

786. The second division of the vernier, is to the left of the second division of the limb double of the first difference, or 30″; and so on to the twentieth, and last division on the left of the vernier piece; where the twenty differences being accumulated, each of the twentieth part of the division of the limb, this last division will be found to agree exactly with the twenty-first division of the limb of the quadrant. The index must be pushed the twentieth part of a division, or 15″ to the right; to make the second division on the vernier coincide with one of the divisions of the limb, in like manner in moving two 20ths, or 30″, we must look at the second division of the index, and there will be a coincidence with a division of the limb. Thus the beginning, D, of the vernier, which is always the line of reckoning, has advanced two divisions, or 30″ to the right, when the second division, marked 30 on the vernier, is seen to correspond exactly with one of the lines of the quadrant.

787. The plate of copper which carries the telescope, is placed on the side of the quadrant, and carries two verniers. The outer line CD divides five minutes into twenty parts, or 15″ each. The interior line A B answers to the parts of another division, not having 90°, but 96 parts of the quadrant. It is usually adopted by English astronomers, on account of the facility of its subdivisions. Each of the 96 portions of the quadrant is equivalent to 56′ 15″ of the usual divisions. It is divided on the limb into sixteen parts, and the arch of the vernier A B contains twenty-five of these divisions; and being divided itself into twenty-four, immediately give parts, the value of each of which is 8″ 47½‴.

788. 6. The portable astronomical quadrant is generally made from twelve to twenty-three inches. Fig. 2, plate XIII. represents one of brass, and strongly framed together by crossed perpendicular bars. The arch A C, and telescope E F, are divided and constructed in a similar manner to the mural quadrant, but generally without the division of ninety-six parts. The counterpoise to the telescope T is represented at P, and also another counterpoise to the quadrant itself at P. The quadrant is fixed to a long axis, which goes into the pillar K R. Upon this axis is fixed an index, which points to, and subdivides by a vernier, the divisions of the azimuth circle, K. This azimuth circle is extremely useful for taking the azimuth of a celestial body, at the time its altitude is observed. The upper end of the axis is firmly connected with the adjusting frame G H; and the pillar is supported on the crossed feet at the bottom of the pillar K R, with the adjusting screws *a b c d*.

789. When the instrument is erected for observation, it is necessary that two adjustments be very accurately made; one, that the place or surface of the instrument be truly perpendicular to the horizon; the other, that the line supposed to be drawn from the centre to the first line of the limb, be truly on a level or parallel with the horizon. The first of these particulars is done by means of the thread and plummet *p*; the thread of which is usually of very fine silver wire, and is placed opposite to a mark made upon the end of the limb of the instrument. The four screws at the foot *a b c d*, are to be turned until a perfect coincidence is observed of the thread upon the mark, which is accurately observed by means of a small telescope T, that fits to the limb. The other adjustment is effected by means of the spirit-level L, which applies on the frame G H, and the small screws turned as before until the bubble of air in the level settles in the middle of the tube. The dotted tube E B is a kind of prover to the instrument; for, observing at what mark the centre of it appears against, or, by putting up a mark against it, it will at any time discover if the instrument has been displaced. The screw S, at the index, is the regulating or adjusting screw, to move the telescope and index, during the observation, with the utmost nicety.

Sect. VII.—The Mural Circle.

790. Valuable as have been the services which the astronomical quadrant has rendered to astronomical science, its use, in modern times, has been altogether superseded by the mural circle, of which we shall now give the description and use:—

791. The circle, with its attached telescope, is made to revolve by means of a horizontal axis, which works in collars fixed in the stone wall. The plane of the circle, see plate X. fig. 3, is parallel to the wall, but the graduations are made on the outer rim of the instrument, which rim is perpendicular to the wall.

792. These graduations are viewed and read off by six microscopes fixed to the wall, one of which microscopes is represented at A, and the places of the five others (precisely similar to the former) are marked by the letters B, C, D, E, F. The microscopes are distant from each other sixty degrees, or so placed as nearly as can be by the instrument maker.

793. The rim is divided into equal parts of five minutes each, and the readings off to a less number of minutes, and to single seconds, are effected by the micrometer microscopes, A, B, &c. the construction of which is as follows: The microscope A, or micrometer microscope A, is directed, as it is shown in the figure, to the rim on which the graduations are made. Consider the object to the microscope to be one graduation of the instrument, or the space occupied by five minutes. The image of this space will be formed in the conjugate focus of the object glass, and will be seen distinctly through the eye-glass of the microscope, when the above-mentioned image is in its focus. In this latter focus (the focus of the eye-glass) are placed a thin indented slip of metal, and a wire capable of being moved in a parallel direction from one mark of division to another by means of a screw. The revolutions of the screw, and parts of its revolution, are noted by means of a screw-head and graduated plate. Now, it is desirable, for the more convenient noting of the

results of observations, that by the five revolutions of the screw, the wire should be translated through the space occupied by five minutes; in which case one revolution would answer to one minute, and one-sixtieth to a second. The mode of effecting this may be thus explained :—

794. Suppose the object-glass of the microscope being at a certain distance from the graduated rim, and there being distinct vision, that the moveable wire appears to be translated through the five minutes by five revolutions and a half of the screw. In such case the image of the five minutes is too small. It will be increased by moving the object-glass towards the graduated rim; the eye-glass, with its wire, &c. being adjusted, by a separate movement, to distinct vision. A second trial must now be made, to ascertain whether five revolutions of the screw are equal or not to the translation of the wire over the image of five minutes of the divided limb. If there is not an equality, the adjustments must be repeated till there be an exact correspondence, as considerable trouble is thereby saved in reducing the graduations of the screw-head to minutes and seconds. If the microscope of the micrometer were allowed to remain in its first state, then, since 5·5 revolutions $= 5'$, one revolution would equal 50.454″ &c.

795. But, whatever be the value of a revolution, the uses of the moveable wire and indented slip of brass are the same. A star is observed on the centre of the cross-wire of the telescope; and on looking through the microscope, the index, or slip of brass, occupies, probably, a place between two graduations. The wire moved from the index, either to the graduation above or below it, measures the distance of the index from that graduation by the revolutions of the screw-head. For convenience, each tooth of the indented brass answers to one minute, so that if the wire is moved from the index post, two teeth, and the index of the screw-head points to 37, then 2′ 37″ are to be added to, or subtracted from, the degrees and minutes which are read off by the eye without the aid of the micrometer. In every observation all the six microscopes are used, to diminish the errors of division, and the effects of partial expansion.

796. In reading off at the several microscopes, we need only to attend to the seconds. For, suppose a star to be in the pole, and the telescope directed to it, the whole circle must be turned round in the direction from B towards C, D, &c.; and the end of the telescope, instead of being directed, as in the figure, to a point in the south, between B and C, will be directed to a point between D and A. If (the telescope being directed to the pole) the reading off at the micrometer A were 0° 0′ 0″, the index error would be 0. If the other microscopes, F, E, B, &c. were placed exactly at equal distances, the reading off at them would be 60°, 120°, 180°, 240°, 360°. This, however, is not likely to take place, the index error of each will probably be of some magnitude. The reading off at A, for instance, instead of being 0° 0′ 0″, may be + 3″, + 10″, + 7″; and in the same way the reading off at the other microscopes, from their not being placed at equal distances, or from inequality of graduation, partial expansion, or from all these causes conjoined, may be 60° ± 4″ 60° ± 6″, 120° + 9″, 120° + 1″, &c.

799. Suppose that, independently of the degrees and minutes, the seconds at the six microscopes were + 5″, + 7″, + 4″ + 12″ + 8″, + 9″; then these are the several index errors; and if the polar distance of an observed star were read off only at one microscope, the index error belonging to that microscope must be applied to the polar distance so read off. Thus, if only the microscope B were used, whose index error is + 12″, and the north polar distance of β Ursa Minores, were read off, 195° 4′ 46″, then deducting 180° for the position of the microscope, and 12″ for the index error, we should have the north polar distance of the star = 50° 4′ 34″.

800. If all the six microscopes are used, the mean index error, or one-sixth of the several index errors, is applied to the result of the several readings.

801. The same illustration would serve if we suppose the telescope directed to a star whose polar distance is previously known. If, for example, we knew that the north polar distance of Polaris was 1° 41′ 41·3″; then if the micrometer A, marked 1° 41′ 48·5″, we should know that its index error was 7·2″; and the equation to be applied to its observed north polar distance at that microscope —7·2. In like manner we should know from the same star the index errors of the other microscopes, and thence the mean index error.

802. That the results from this instrument do not depend on the accurate positions of the microscopes, may be easily shown. Suppose the telescope directed to the pole, and that the seconds indicated by the micrometer A be 7″, let B indicate b + 23″; C, c + 4; D, d + 5; E, e + 9, and F, f + 15; b, c, d, &c. denoting the degrees and minutes. Let X be the north polar distance of any star (Capella, for example, X being = 44° 12′ 16″), and let the number of seconds in X be 16; so that, y being the degrees and minutes $x = y + 16''$; then the instrument being directed to Capella (and consequently turned through an angle X), and the errors of division, expansion, and uncertainties in reading off not being considered, the seconds at which it will stand will be 23, B, 39; C, 20; D, 21; E, 25, and F, 31; one-sixth of the sum of which is 26·5″, whence the north polar distance of Capella by the instrument, is Y + 26·5″ = 44° 12′ 26·5″; and consequently the mean index error $y + 26{\cdot}5'' - x = y + 26{\cdot}5'' - y + 16'' = 10{\cdot}5$.

803. The index error may be found in the same way by any other star, since x may be any angle; and if the catalogues were exact, and the instrument perfect, the same index error would result from all stars. If, for instance, the seconds in x, instead of 16″ were 36″, we should still have the same index error 10·5″. But in practice, the index error will be found different with different stars, both on account of the imperfection of the catalogues, the inaccuracy of graduation, and other defects in the instrument. The index error, therefore, is found from observations on a

great number of stars, and the mean of the whole of the errors so found, is considered as the general mean index error.

804. For the purpose of lessening the errors of division, the telescope can be shifted to different parts of the circle, so that instead of the microscope A, nearly coinciding with O, when the telescope is pointed to the pole, it may point nearly to 10°, 20°, 30°, or any other degree of the circle. In this case the index error in seconds, found as above, added to the degrees and minutes read off by the eye, is the index error of the microscope.

805. The mural circle, like the transit instrument, requires three adjustments, 1. Its axis must be made horizontal. 2. Its line of collimation must be made perpendicular to the horizontal axis. 3. The line of collimation must be made to move in the plane of the meridian.

806. The method of making the first adjustment is the same as that for making the like adjustment in the transit instrument; and as the two instruments are commonly used in conjunction, we may use the transit instrument for bringing the plane of the circle and its telescope into the plane of the meridian. When a star is on the meridional wire of the transit instrument, move the mural circle, so that the star may be also on its middle wire. Observe, by the transit instrument, when a star in or near the zenith crosses the meridian, and if it is also at the same time on the middle vertical wire of the telescope of the mural circle, its line of collimation is rightly adjusted. If a difference exists, adjust till an exact agreement takes place.

807. The great difficulties attending the verification of the line of collimation in the mural circle, will always prevent its becoming a good transit instrument; though, in this respect, it acts better than the telescope of the mural quadrant, which slides along the limb of the quadrant, whose plane cannot be made wholly on the plane of the meridian.

808. The mural circle is evidently sufficient to determine to the extent of 180°, the differences of the declinations of stars south and north of the zenith of the observer. There must be two quadrants to effect the same object; and besides this advantage (that of a single instrument), the circle is better balanced, and its six microscopes, which are firmly fixed in a stone wall, together with the power of changing the position of the telescope, must, when we take the mean results of a great number of observations, in a great measure do away the errors of division or partial expansion.

809. The direct and special office of the mural circle is to determine the meridional angular distances of stars. But we may extend the principle of its uses, and view the image of the pole star, by reflection, from a basin of quicksilver, and we thence obtain the angular distance between the star and its image, which is twice the elevation of the star above the horizon. Hence its zenith distance becomes known, and the zenith distances of other stars are consequently readily given by the instrument. The circle in this application combines in itself the properties of the mural quadrant and zenith sector. It was first applied by the present astronomer royal, and it is one of the many improvements on practical astronomy for which the world is indebted to that eminent, active, and unassuming astronomer.

810. The preceding is a concise description of the circle which Troughton fixed at the Royal Observatory. Some trifling differences between the results given by it and other instruments, lately induced government to have another made by Jones, which is now fixed to the west wall, five feet from the other circle. The agreement between them is almost perfect.

811. Dr. Brinkley of Dublin has a circle, and a very admirable one, which moves round a pillar, or azimuth; and consequently, in two days it determines double the zenith distance of any celestial object. He employs only three microscopes in reading off; but the principle of reading is the same as that which we have above described; and a person who attentively considers what we have said on the subject of the Greenwich circle, will have no difficulty in comprehending the method of using the Dublin one.

812. 8. The Astronomical or Equatorial Sector, is an instrument for finding the difference, in right ascension and declination, between two objects; the distance of which is too great to be observed by the micrometer, and was invented by Graham. Let A B, plate XIII. fig. 4, represent an arch of a circle containing ten or twelve degrees well divided, having a strong plate C D for its radius, fixed to the middle of the arch at D: let this radius be applied to the side of an axis H F I, and be movable about a joint fixed to it at F, so that the plane of the sector may be always parallel to the axis H I; which being parallel to the axis of the earth, the plane of the sector will always be parallel to the plane of some hour circle. Let a telescope C E be movable about the centre C, of the arch A B, from one end of it to the other, by turning a screw at G; and let the line of sight be parallel to the plane of the sector. Now, by turning the whole instrument about the axis H I, till the plane of it be successively directed, first to one of the stars and then to another, it is easy to move the sector about the joint F, into such a position, that the arch A B, when fixed, shall take in both the stars in their passage, by the plane of it, provided the difference of their declinations does not exceed the arch A B. Then, having fixed the plane of the sector a little to the westward of both the stars, move the telescope C E by the screw G; and observe by a clock the time of each transit over the cross hairs, and also the degree and minutes upon the arch A B, cut by the index at each transit; then in the difference of the arches, the difference of the declinations, and by the difference of the times, we have the difference of the right ascensions of the stars.

813. The dimensions of this instrument are these: The length of the telescope, or the radius of the sector, is 2½ feet; the breadth of the radius, near the end C, is 1½ inch; and at the end D, two inches. The breadth of the limb, A B, is 1½ inch; and its length six inches, containing ten degrees, divided into quarters, and

numbered from either end to the other. The telescope carries a nonius or subdividing plate, whose length, being equal to sixteen quarters of a degree, is divided into fifteen equal parts; which, in effect, divides the limb into minutes, and by estimation, into smaller parts. The length of the square axis, H I F, is eighteen inches, and of the part I I twelve inches; and its thickness is about a quarter of an inch: the diameters of the circles are each five inches: the thickness of the plates, and the other measures, may be taken at the direction of a workman.

814. This instrument may be rectified, for making observations, in this manner: By placing the intersection of the cross hairs at the same distance from the plane of the sector, as the centre of the object-glass, the plane described by the line of sight, during the circular motion of the telescope upon the limb, will be sufficiently true, or free from conical curvity; which may be examined, by suspending a long plumb-line at a convenient distance from the instrument; and, by fixing the plane of the sector in a vertical position, and then by observing, while the telescope is moved by the screw along the limb, whether the cross hairs appear to move along the plumb-line.

815. The axis, *h f o*, fig. 5, may be elevated, nearly parallel to the axis of the earth, by means of a small common quadrant; and its error may be corrected, by making the line of sight follow the circular motion of any of the circumpolar stars, while the whole instrument is moved about its axis, *h f o*, the telescope being fixed to the limb; for this purpose, let the telescope *k l* be directed to the star *a*, when it passes over the highest point of its diurnal circle, and let the division cut by the nonius be then noted: then, after twelve hours, when the star comes to the lowest point of its circle, having turned the instrument half round its axis, to bring the telescope into the position *m n*; if the cross hairs cover the same star supposed at *b*, the elevation of the axis, *h f o*, is exactly right; but, if it be necessary to move the telescope into the position *u v*, in order to point to the star at *c*, the arch *m u*, which measures the angle *m f u* or *b f c*, will be known; and then the axis *h f o* must be depressed half the quantity of this given angle, if the star passed below *b*, or must be raised so much higher, if above it; and then the trial must be repeated, till the true elevation of the axis be obtained. By making the like observations upon the same star on each side the pole, in the six o'clock hour circle, the error of the axis, toward the east or west, may also be found and corrected, till the cross hairs follow the star quite round the pole: for, supposing *a o p b c* to be an arch of the meridian (or in the secondary practice of the six o'clock hour circle), make the angle *a f p* equal to half an angle *a f c*, and the line *f p* will point to the pole; and the angle *o f p*, which is the error of the axis, will be equal to half the angle *b f c*, or *m f u*, found by the observation; because the difference of the two angles *a f b*, *a f c*, is double the difference of their halves *a f o* and *a f p*. Unless the star be near the pole, allowance must be made for refractions.

816. 9. The transit instrument is used for observing objects as they pass over the meridian, and consists of a telescope fixed at right angles to an horizontal axis, so supported that what is called the line of collimation, or line of sight of the telescope, may move in the plane of the meridian.

817. Let A D, plate X. fig. 1, represent a telescope fixed, as it is represented in the figure, to an horizontal axis formed of two cones. The two small ends of these cones are ground into two perfectly equal cylinders; which cylindrical ends are called pivots. These pivots rest on two angular bearings, in form like the upper part of a Y, and denominated Y's. The Y's are placed in two dove-tailed brass grooves, fastened in two stone pillars, E and W, so erected as to be perfectly steady. One of the grooves is horizontal, the other vertical; so that, by means of screws, one end of the axis may be pushed a little forwards or backwards, and the other end may be either slightly depressed or elevated. Which two small movements are necessary, as it will be soon explained, for two adjustments of the telescope.

818. Let E be called the eastern pillar, W the western. On the eastern end of the axis is fixed (so that it revolves with the axis) an index *n*, the upper part of which, when the telescope revolves, nearly slides along the graduated face of a circle; attached, as it is shown in the figure, to the eastern pillar. The use of this part of the apparatus is to adjust the telescope to the zenith, or polar distance (for the one is as easily done as the other) of a star, the transit of which is to be observed. Thus, suppose the index of *n* to be at *o* (in the upper part of the circle) when the telescope is horizontal; then, by elevating the telescope, the index of *n* is moved downwards. Suppose the position to be that represented in the figure, then the number of degrees between *o*, and what the index of *n* marks, is the altitude of the telescope; or we may so graduate the circle, that the index shall mark the telescope's zenith distance; or, if we make the *o*, the beginning of the graduation, to belong to that position of the telescope in which it is directed to the pole, the number of degrees, &c. between *o* and any other position of the index, will mark either the telescope's polar distance, or if we please, may be made to mark the telescope's declination; the telescope in all these cases being supposed to move in the plane of the meridian.

819. There are several other parts and contrivances belonging to the instrument not shown in the figure; for instance, one of the cones is hollowed; and, opposite the orifice, there is placed in the pillar a lamp, which, throwing its light on a plane speculum, placed in the axis of the telescope, and inclined at an angle of 45°, illuminates the cross wires. It is usual, also, in large transits, to have counterpoises, by which the pressure of the pivots of the axis on the Y's is relieved. We will now explain the three principal adjustments of the transit.

820. 1. To make the axis on which the telescope moves, horizontal.

821. 2. To make the line of collimation move in a great vertical circle; or, which is the same

thing, to make it perpendicular to the horizontal axis.

822. 3. To make it move in that vertical circle which is the meridian.

823. The first adjustment is effected by means of a level; the figure A is intended to represent the level L, as hanging by means of its upright arms (bent, however, in their upper extremities) on the two pivots of the axis. The principle, however, and mode of rendering any axis horizontal, by means of a level, may be best explained by the subjoined figure.

824. In plate X, fig. 2, the spirit-level (including in that term the brass tube that partly envelopes it, the horizontal bar to which it is affixed, and the two vertical arms by which it is hung on any cylinder or rod) is represented as hanging on a straight cylinder *a b*, the end towards *a* lying on a crotchet, which is capable of being raised or lowered by a screw B. The end A of the tube A D, which contains the level, is also capable of being lowered or raised by means of a screw at A, as is shown in the figure.

825. If *a b* were horizontal, and the tube of the spirit-level were parallel to *a b*, then the bubble would occupy the middle, or the two extremities of the bubble would be equidistant from the centre, and would be, for instance, at *f* and *e*. The same thing would happen if the level were reversed, that is, if it were taken off the rod, turned round, and again hung on; so that *d* in the second position, should occupy the place that A did in the first, or should be to the right hand. But if *a b*, should not be horizontal, the above circumstances cannot take place. Suppose the end *a* to be lower than the end *b*, then if the level should not be parallel to *a b*, the bubble might still stand in the middle, by the end at A being, by a certain quantity, higher than the end at B. But on reversing the level the bubble cannot occupy its middle; since then, the lower part of the rod *a b*, and the lower part of the level, would both be situated at the right hand. The bubble, however, may not stand in the middle from two causes, the want of horizontality in *a b*, and the want of parallelism to it in the tube contained between A D.

826. If the level were parallel to *a b*, and the extremity of the bubble, instead of being at *e*, should be at *h*, on reversing the level, the other extremity of the bubble (which, by the reversion, would be towards *a*) would be at *h*; *f k* being equal to *e h*. But suppose this is found not to be the case, and that the extremity of the bubble, on reversing the level, is at *n*, then the circumstance of the bubble not standing at the two points *e* and *f*, cannot arise solely from the end *a* being higher than *b*; but the level cannot be parallel to *a b*; and in the case we have put, the end at A must be lower than the end at D, when the level then is in the second or the reversed position; so elevate the end at A, by means of the screw A, that the extremity of the bubble shall descend from *n*, and occupy a place intermediate to *n* and *k*, and then the level is made parallel to *a b*: this is the first adjustment. Next, by means of the screw B, so depress the end, *a* that the extremities of the bubble shall be (as they ought to be, *e f* being the length of the bubble) at *e* and *f*; then is *a b* adjusted or made horizontal; this second adjustment completes the operation.

827. In the preceding reasonings, *a b* has been considered (the whole of it) as cylindrical. But this is not necessary: it is sufficient if its extremities at *a* and *b* (the pivots), on which the level is hung, be equal cylinders, the axis of which lie in the same straight line. The intermediate parts of the axis of the transit between the pivots, may be of any form: they may be formed, as they generally are, of two cones. The preceding process then will render the axis of the transit horizontal; the level, whether in its primary or in its reversed position, being supposed to be hung on the equally cylindrical pivots.

828. The axis being now horizontal, the next operation is to make the line of collimation describe a great vertical circle, or, which is now the same thing, to make the line of collimation perpendicular to the axis of the transit. The telescope A D is furnished, like the telescope of the quadrant, with a system of cross-wires placed in the principal focus of the object-glass. Suppose the wires so placed, that the line of collimation is perpendicular to the axis of the transit. If then a small and well-defined object be bisected by the centre of the cross-wires, it will still be bisected when the transit is lifted off its angular bearings, reversed and directed to the object; that is, if the end of the axis carrying the index *n*, which is placed on the eastern Y, should be placed on the western. Let now the wires be deranged, so that their intersection is moved, not, as in the former case, in the plane of the meridian, but in a direction perpendicular to that plane, and suppose it moved a little towards the east. In this case, the object before bisected is no longer so, but will be seen in the field of view a little to the west of the present centre of the cross-wires. Reverse the telescope, then the centre will be towards the west, and the original object will be seen a little to the east of the centre: as much towards the east as it was before towards the west. If, therefore, there should be two objects or marks (on the horizon, for instance,) bisected by the centre of the wires in the two positions of the transit, the correction or adjustment of the line of collimation would consist in moving the centre of the cross-wires half-way towards that object which is not on the centre.

829. But the moving the centre of the cross-wires half-way towards an object, is a matter of guess, and not of certainty. In order to ascertain whether, in moving the centre, we have adjusted it rightly, we may avail ourselves of that angular bearing, or Y, which, by means of an horizontal groove and screw, we can move, together with the pivot of the axis, in azimuth. So move these then, that the object to which we have already made the centre to approach half-way, may be exactly bisected by that centre. Reverse the transit, and the object and centre are either coincident, or very nearly so. If the latter be the case, again by their proper motion, move the centre of the wires half-way towards the object, and move it the other half-way by the screw that acts on the axis. Reverse the instru-

ment, and again, if it be necessary, repeat the above operations.

830. By these means, after a few trials, we are sure of making the line of collimation, or axis of vision, perpendicular to the axis of the transit; and when that is effected, the cross-wires are no longer to be meddled with, although we must continue to use the above horizontal movement of the axis, for the purpose of placing the line of collimation in the plane of the meridian. That line now moves in a vertical circle, and produced passes through the zenith: it is farther necessary to make it pass through the pole.

831. The transit instrument is supported between two fixed pillars. It must be supposed to be nearly in the meridian, and to need only some slight adjustments to place it there exactly. It would be easy to effect this, were the pole-star exactly in the pole; for, then, it would be only requisite to bisect that star by the middle vertical cross-wire. But the pole-star being, in fact, a circumpolar one, we must compute, by means of existing tables and observations, the time of its transit; and, at that computed time, bisect the star by the middle vertical wire. By these methods we may place the transit very nearly in the plane of the meridian.

832. We will now show how to place it there more exactly by means either of the polar, or of any other circumpolar star.

833. The axis being horizontal, the optical axis perpendicular to it passes through the zenith: let Z P H in fig. 1, plate VI., be the true meridian, and Z *s m* the vertical circle described by the optical axis or line of collimation; then H *m*, which is the measure of the angle at Z, is the deviation of the transit from the meridian.

Let *s s′ s″ σ* represent the circle described by a circumpolar star, which is seen through the transit telescope at *σ*, its inferior passage, and at *s*, its superior. Now, when the transit is not in the meridian, the time from *σ* to *s* cannot equal the time from *s* through *s′* and *s″* to *σ*: for, P being the pole, the former time is proportional to the angle *σ* P *s*, or,

$$180° - \angle\, s\,P\,s' - \angle\, \sigma\,P\,s''.$$

the latter to

$$180° + \angle\, s\,P\,s' + \angle\, \sigma\,P\,s''.$$

834. Hence, if the interval between the inferior and superior passage should be less than the interval between the superior and inferior, the plane in which the transit moves from the zenith to the north of the horizon (P being the north pole) is to the eastward of the true meridian.

835. But in order to estimate the quantity of deviation from the observed difference of intervals between the passages, we must compute the angles *s* P *s′* or *s* P Z, and *σ* P H,—now

$$\text{sin. } s\,P\,Z = \text{sin. } s\,Z\,P \times \frac{\text{sin. } Z\,s}{\text{sin. } P\,s'}$$

$$\text{sin. } \sigma\,P\,H = \text{sin. } \sigma\,P\,Z = \text{sin. } s\,Z\,P + \frac{\text{sin. } Z\,\sigma}{\text{sin. } P\,\sigma}$$

Let $\angle\, s\,Z\,P$ (measured by H *m*) = Z,

$P\,s = P\,\sigma = \pi$

the latitude of the place (= H P) = L.

Then since Z, or the deviation from the meridian is, by the conditions, very small, we have, nearly sin. Z = Z

$$Z\,s = Z\,P - P\,s = 90° - (L + \pi),$$
$$Z\,\sigma = Z\,P + P\,s = 90° - (L - \pi),$$

consequently, *s* P Z (which is, nearly, = its sine)

$$= Z.\ \text{cos.}\frac{(L + \pi)}{\text{sin. } \pi} = Z.\ (\text{cos. L cos. } \pi - \text{sin. L}),$$

and $\sigma\,P\,H = Z.\ \frac{\text{cos. } (L. - \pi)}{\text{sin. } \pi} - Z\ (\text{cos. L. cos. } \pi + \text{sin. L}).$

Hence, the time from *σ* to *s* = 180° − 2 Z cos. L. cot. *π*,

and from *s* to *σ* = 180° + 2 Z cos. L. cot. *π*;

let the former time = 12 h. − Δ,

the latter = 12 h. + Δ;

then, since 180° is the angular measure, or exponent of twelve hours of siderial time,

12 h. − Δ = 12 h. − 2 Z. cos. L. cot. *π*,

12 h. + Δ = 12 h. + 2 Z. cos. L. cot. *π*,

whence $Z = \frac{\Delta}{2 \text{ cos. L. cot. } \pi.}$

or $= \frac{\Delta}{2} \text{ sec. L tan. } \pi.$

836. The plane in which the line of collimation moves is brought into the plane of the meridian by means of a screw; and supposing the adjustment nearly effected, it may be completed in the following manner: Let the time of the transit of an equatorial star be noted on a particular day. Alter the inclination of the plane in which the line of collimation moves, by turning the screws once round, and observe the time of the star's next transit. If the difference between the siderial times of transit be *s* seconds, then, *s* seconds of time corresponding to one revolution of the screw, it is easy to find the number of revolutions, or parts of a revolution, that will give the correction 2, in the above equation; whence the adjustment may be made to any degree of accuracy.

837. Computing from the above formulæ for Z, we shall find that, in the case of Polaris, a deviation of ten seconds in the position of the transit instrument will, in the latitude of London, produce a difference of about seven minutes in the times between the upper and lower transits of the star; and in the case of Capella, a difference of only about twenty-five seconds. Hence, cæteris paribus, the pole-star is better adapted than Capella, to adjust, by the preceding method, a transit telescope to the plane of the meridian. The slow motion of the pole-star, however, in some measure detracts from this superiority. In small instruments it is hid for some seconds behind the wire. Even in the splendid ten feet transit, at Greenwich, it may be considered as hid for about a second.

838. Still, however, on the whole, this star is the most convenient one that can be made use of. The following is the method of making this adjustment by means of the transits of the pole-star and of a star which passes near the zenith of the place of observation. In our latitudes, for instance, if the transit deviate only slightly from the plane of the meridian, Capella would pass the meridian very nearly at the time of its passing the vertical wire of the telescope. Assume it to pass exactly, and note the difference between the time shown by the clock and the star's known right ascension. Observe the time when the

pole-star is on the meridian, (which will differ more from the star's right ascension than the transit of Capella did from its right ascension), and compute, from the difference between its true right ascension and the observed time of its transit, the deviation of the instrument, and adjust it accordingly.

839. This operation will give a near approximation to the required position; and by a repetition or two of the process, the adjustment may be effected with great precision.

840. The line of collimation being now supposed, by means of the previous adjustments, to describe a great circle passing through the celestial pole and the zenith of the observer, the transit instrument is in a fit state to note the passages of stars across the meridian. A star passes the meridian when it coincides with the centre *a*, fig. 3. plate IX., of the cross-wires; but if *d e* were truly vertical, a star on any point of *d e* would be on the meridian; hence it is desirable to make *d e* vertical, since we might then observe the star's transit on any part of that line. This may be easily done thus: Direct the transit telescope to some well-defined distant object, so that it is bisected by some point of *d e*; move the telescope upwards and downwards on its horizontal axis, and observe whether the same object is bisected by every part of *d e*, or whether it runs along *d e* If it does, the wire is vertical, or the middle wire is a meridional wire; if it does not, the wire must be adjusted till the object coincides with it in every part.

841. In large instruments these various adjustments are made with considerable trouble and difficulty; and in order to prevent a repetition of these troublesome verifications, when the instrument is once adjusted to the plane of the meridian, two marks are set up, one to the north and the other to the south, and their places determined by means of the meridional wire. They are first placed by means of the instrument, adjusted by the astronomical means above explained, and they are subsequently used to bring the instrument into the meridian, should it become deranged.

842. Besides the meridional wire, it is usual to place on each side of it, and at equal distances from it, parallel side wires, to check the middle wire and to supply its place, if from clouds or other accidents, an observation on it should not be obtained. The old transit, at Greenwich, had four side wires, or, in all, five wires. The present one has seven; though only five are in general used. In fig. 2, plate IX. five wires are represented, and numbered 1, 2, 3, 4, 5.

843. If the wires are equidistant, then the fifth part of the sum of the times at which a star is observed on the several wires, will be the time of its passing the meridian, and it ought, if the observation is well made, to agree with the time of passing the middle wire.

844. But the fact is, we are not able to note absolutely the times at the several wires; for probably no beat of the pendulum will happen exactly when the star is on the wire. The observer is obliged to estimate to the best of his judgment, the fraction of a second sum, the last beat of the pendulum, when the star is on the wire. A tenth or two of a second may be put down too much at one wire, and too little at another; but the errors will probably in a great degree compensate each other, and the result will certainly be entitled to more confidence than a single observation at the middle wire.

845. It will soon be perceived by the observer, that stars near the equator, pass more speedily from wire to wire than stars near the pole. It is easy to prove that the time of a star's describing small spaces perpendicular to the meridian varies as the secant of its declination. For (fig. 1, plate IX.) let P represent the pole P'*e*, P*f*, two quadrants; let *s t* represent the interval of the wires, which, by reason of its smallness is nearly coincident with *s r t*. Take *e q* = *s t*; then by the revolution of the earth or star apparently moves from *s* to *t* in the same time that another moves from *e* to *f*. But the time through *s t* (= the time through *e f*) = time through $e\,q \times \frac{e\,f}{e\,q}$ = time through $e\,q + \frac{e\,f}{s\,t}$ = time through $e\,q + \frac{\text{rad.}}{\cos.se}$ = time through $e\,q + \frac{\text{sect. } s\,e}{\text{rad.}}$ Hence, if the time through *e q*, that is the time of an equatorial star crossing the interval *e q*, be given, the time of crossing an equal interval, *s t*, varies as the secant of the star's declination.

846. There is, however, no star exactly in the equator; but the equatorial time of a star's running from wire to wire, may be readily obtained from the time which a star of known declination is observed to take. Let *t* be the observed time, and *d* the declination, then *t*, sect. *d* = the equatorial time.

847. By the preceding methods, the upright wires of the telescope may be adjusted vertically, and the true intervals between the wires found in parts of siderial time. To know whether the wires, which ought to be at right angles to the former, are truly horizontal, direct the telescope towards a star near the equator, and if the star entering at *h*, plate IX. fig. 2, in an inverting telescope, run along *h f*; then *h f* is horizontal.

848. This test of horizontality is strictly true only with respect to a star in the equator. If the star be out of the equator, it cannot be bisected during the whole of its passage from *h* to *f*; for the star then describes the arc of a small circle. In fig 1, plate IX. let *s m t* be an arc of a great circle; then a star describing *s m t* would seem to an eye situated in a plane passing through *s m t* and *s t*, to describe *s t*; but *s r t*, part of a small circle parallel to *e f*, is the star's apparent path, which coinciding at its extremities with the chord *s t* would appear, in the astronomical telescope, to describe a curve below the cross horizontal wire, the apparent curvature of the path increasing with the declination. There are, however, many stars near enough the equator to make this adjustment, without reference to the apparent curvature of their paths in the transit instrument, as they will differ from straight lines by a quantity too small to be estimated.

849. We have hitherto spoken only of the transits of stars, which are but as points without disks. The sun and the moon, however, have

disks, but no marked points for their centres; and the transit of a heavenly body means the transit of its centre. With respect to the sun, the time at which his first or preceding limb touches each wire is noted, and the time at which his following limb comes to the same wire is also noted, and the sum of the times of observation divided by the number of observations, gives the time at which his centre is on the meridian.

850. It is seldom, however, that the transit of both limbs of the moon can be observed; but the mean of the times at which her enlightened limb is in contact with the several vertical wires, is the time at which that limb is on the meridian; and adding to this, or subtracting from it, the time that the moon takes to move over a space equal to her own semidiameter, according as the east or west, the following or preceding limb is observed, we obtain the time at which her centre is on the meridian.

We have judged it right to devote so much space to the description of the circle and transit instruments, as in the present state of astronomical science, they, with the astronomical clock, are the capital instruments of our observatory.

851. 10. The Equatorial or Portable Observatory; an instrument designed to answer a number of useful purposes in practical astronomy, independent of any particular observatory, may be made use of in any steady place, and performs most of the useful operations in the science. The principal parts of this instrument, plate XIII. fig. 3, are, 1. The azimuth or horizontal circle A, which represents the horizon of the place, and moves on a long axis B, called the vertical axis. 2. The equatorial or hour circle C, representing the equator, placed at right angles to the polar axis D, or the axis of the earth upon which it moves. 3. The semicircle of declination E, on which the telescope is placed, and moving on the axis of declination, or the axis of motion of the line of collimation.

852. These circles are measured and divided as in the following table:

Measures of the several circles, and divisions of them.	Radius. In dec.	Limb divided to	Nonius of 30 given seconds.	Divided on limb into parts of inc.	Divided by Nonius into parts of inc.
Azimuth or horizontal circle.	5 1	15′	30″	45th	1350th
Equatorial or hour circle.	5 1	15′ / 1′ in time.	30′ / 2″	45th	1350th
Vertical semicircle for declination or latitude.	5 5	15′	30″	42nd	1260th

853. 4. The telescope in this equatorial may be brought parallel to the polar axis, as in the figure, so as to point to the pole star in any part of its diurnal revolution: and thus it has been observed near noon, when the sun has shone very bright. 5. The apparatus for correcting the error in altitude occasioned by refraction, which is applied to the eye-end of the telescope, and consists of a slide G, moving in a groove or dovetail, and carrying the several eye-tubes of the telescope, on which slide there is an index corresponding to five small divisions engraved on the dovetail; a very small circle, called the refraction circle, H, moveable by a finger screw at the extremity of the eye end of the telescope; which circle is divided into half minutes, one entire revolution of it being equal to 3′ 18″, and by its motion raises the centre of the cross hairs on a circle of altitude; and a quadrant, I, of 1½ inch radius, with divisions on each side, one expressing the degree of altitude of the object viewed, and the other expressing the minutes and seconds of error occasioned by refraction corresponding to that degree of altitude. To this quadrant is joined a small round level, K, which is adjusted partly by the pinion that turns the whole of this apparatus, and partly by the index of the quadrant; for which purpose the refraction circle is set to the same minute, &c. which the index points to, on the limb of the quadrant; and if the minute, &c. given by the quadrant exceed the 3′ 18″, contained in one entire revolution of the refraction circle, this must be set to the excess above one or more of its entire revolutions; then the centre of the cross hairs will appear to be raised on a circle of altitude to the additional height which the error of refraction will occasion at that altitude.

854. To adjust this instrument make the line of collimation to describe a portion of an hour-circle in the heavens; in order to which, the azimuth circle must be truly level, the line of collimation, or some corresponding line represented by the small brass rod, M, parallel to it, must be perpendicular to the axis of its own proper motion; and this last axis must be perpendicular to the polar axis; on the brass rod M, there is occasionally placed a hanging level, N, the use of which will appear in the following adjustments.

855. The azimuth circle may be made level, by turning the instrument till one of the levels is parallel to an imaginary line joining two of the feet screws; then adjust the level with these two feet screws; turn the circle half round, i. e. 180°; and, if the bubble be not then right, correct half the error by the screw belonging to the level, and the other half error by the two feet screws; repeat this till the bubble comes right; then turn the circle 90° from the two former positions, and set the bubble right, if it be wrong, by the foot screw at the end of the level; when this is done, adjust the other level by its own screw, and the azimuth circle will be truly level. The hanging level must then be fixed to the brass rod by two hooks of equal length, and made truly parallel to it: for this purpose make the polar axis perpendicular or nearly perpendicular to the ho-

rizon; then adjust the level by the pinion of the declination semicircle; reverse the level and, if it be wrong, correct half the error by a small steel screw that lies under one end of the level, and the other half error by the pinion of the declination semicircle; repeat this till the bubble be right in both positions.

856. To make the brass rod on which the level is suspended at right angles to the axis of motion of the telescope or line of collimation, make the polar axis horizontal, or nearly so: set the declination semicircle at 0°, turn the hour circle till the bubble comes right; then turn the declination circle to 90°; adjust the bubble by raising or depressing the polar axis; first by hand till it be nearly right; afterwards tighten, with an ivory key, the socket which runs on an arch with the polar axis; and then apply the same ivory key to the adjusting screw at the end of the said arch, till the bubble comes quite right; then turn the declination circle to the opposite 90°; if the level be not then right, correct half the error, by the aforesaid adjusting screw at the end of the arch, and the other half error by the two screws which raise or depress the end of the brass rod. The polar axis remaining nearly horizontal as before, and the declination semicircle at 0°, adjust the bubble by the hour circle; then turn the declination semicircle to 90°, and adjust the bubble by raising or depressing the polar axis; then turn the hour circle twelve hours; and if the bubble be wrong, correct half the error by the polar axis, and the other half error by the two pair of capstan screws at the feet of the two supporters on one side of the axis of motion of the telescope; and thus this axis will be at right angles to the polar axis.

857. The next adjustment is to make the centre of cross hairs remain on the same object, while the eye-tube is turned quite round by the pinion of the refraction apparatus. For this adjustment, set the index on the slide to the first division on the dovetail; and set the division marked 18″ on the refraction circle to its index; then look through the telescope, and with the pinion turn the eye-tube quite round; and if the centre of the hairs does not remain on the same spot during that revolution, it must be corrected by the four small screws, two and two at a time, which will be found upon unscrewing the nearest end of the eye-tube that contains the first eye-glass; repeat this correction till the centre of the hairs remains on the spot looked at, during an entire revolution.

858. To make the line of collimation parallel to the brass rod on which the level hangs, set the polar axis horizontal, and the declination circle to 90°; adjust the level by the polar axis; look through the telescope on some distant horizontal object, covered by the centre of the cross hairs; then invert the telescope, which is done by turning the hour circle half round, and, if the centre of the cross hairs does not cover the same object as before, correct half the error by the uppermost and lowermost of the four small screws at the eye-end of the large tube of the telescope. This correction will give a second object, now covered by the centre of the hairs, which must be adopted instead of the first object: then invert the telescope as before; and if the second object be not covered by the centre of the hairs, correct half the error by the same two screws which were used before. This correction will give a third object, now covered by the centre of the hairs, which must be adopted instead of the second object; repeat this operation till no error remains; then set the hour circle exactly to 12 hours (the declination circle remaining at 90° as before); and, if the centre of the cross hairs does not cover the last object fixed on, set it to that object by the two remaining small screws at the end of the large tube, and then the line of collimation will be parallel to the brass rod.

859. For rectifying the nonius of the declination and equatorial circles, lower the telescope as many degrees, minutes, and seconds, below 0°, or Æ, on the declination semicircle as are equal to the complement of the latitude; then elevate the polar axis till the bubble be horizontal, and thus the equatorial circle will be elevated to the co-latitude of the place; set this circle to 6 hours; adjust the level by the pinion of the declination circle; then turn the equatorial circle exactly 12 hours from the last position; and if the level be not right, correct one half of the error by the equatorial circle, and the other half by the declination circle; then turn the equatorial circle back again exactly 12 hours from the last position; and if the level be still wrong, repeat the correction as before till it be right, when turned to either position; that being done, set the nonius of the equatorial circle exactly to 6 hours, and the nonius of the declination circle exactly to 0°. The uses of this equatorial are:

860. 1. To find the meridian by one observation only: for this purpose, elevate the equatorial circle to the co-latitude of the place, and set the declination semicircle to the sun's declination for the day and hour required; then move the azimuth and hour circles both at the same time, either in the same or contrary direction, till the centre of the cross hairs in the telescope exactly covers the centre of the sun. When that is done, the index of the hour circle will give the apparent or solar time at the instant of observation; and thus the time is gained, though the sun be at a distance from the meridian. Then turn the hour circle till the index points precisely at 12 o'clock, and lower the telescope to the horizon, in order to observe some point there in the centre of the glass, and that point is the meridian mark found by one observation only; the best time for this operation is three hours before or three hours after twelve at noon.

861. 2. To point the telescope on a star, though not on the meridian, in full day light. Having elevated the equatorial circle to the co-latitude of the place, and set the declination semicircle to the star's declination, move the index of the hour circle till it point to the precise time at which the star is then distant from the meridian, found in tables of the right ascension of the stars, and the star will then appear in the glass. Besides these uses, peculiar to this instrument, it is also applicable to all the purposes to which the principal astronomical instruments, viz. a transit, a quadrant, and an equal altitude instrument, are applied.

862. This instrument, however, like all instruments that profess to do much, does nothing so well as instruments whose objects are more limited. The splendid equatorial of sir Geo. Shuckburgh, now at the royal observatory at Greenwich, is seldom used, except to observe comets when they cannot be seen at the time of their transit. And even for that purpose it is now likely to be superseded, by an equatorial lately put up in the north-west turret of the observatory, by Mr. Dollond. The polar axis of this equatorial is fixed in the direction of the earth's axis, and carries round with it a vernier which points out right ascensions, on an equatorial circle, fixed at its lower extremity; and a circle at right angles to the equatorial is attached to the axis, which shows at once the distances of objects to which its telescope is pointed.

863. We shall conclude the subject of astronomy with the following catalogue of sixty of the principal fixed stars, recently published by astronomer royal, who remarks upon it that 'The catalogue will require a small correction, common to every star, both in right ascension, and north polar distance. The correction in R. A. will be subtractive, and may amount to nearly one-tenth of a second in time. The correction in N P D will, I imagine, be likewise subtractive, and will not exceed a quarter of a second.

'It is divided into four classes, according to the supposed degree of accuracy of each. The stars of the first class are those that have been determined both by direct vision, and reflection The second class consists chiefly of those too near the zenith to be observed by reflection. The third class is not quite so exact as the second, and the fourth still less exact than the third. The errors of the first and second classes, I should think, can rarely exceed a quarter of a second: in the third class the error may probably amount to double that quantity; and the fourth class cannot be relied on but to the nearest second. Regulus ought, from the number of observations, to be in the first class; but, from some accidental discordances, I have reserved it for future examination. The errors are quite independent of the common error above-mentioned, the exact amount of which will be the future subject of investigation.'

864. *Catalogue of the Right Ascensions and North Polar Distance of Sixty Stars, for the beginning of* 1823, *by* J. POND, *Esq. Astronomer Royal.*

No.	Names of Stars.	Right Ascension.	N. P. D. Bradley's Refraction.	N. P. D. French Refraction.	Class.
		H. M. S.			
1	γ Pegasi . .	0 4 8·1	75° 48′ 2·2″	75° 48′ 3·4″	1
2	α Cassiopeæ .	0 30 31·3	34 26 6·0	34 26 6·4	1
3	Polaris . .	0 57 46·2	1 38 7·7	1 38 7·7	1
4	α Arietes . .	1 57 13·1	67 22 44·4	67 22 45·1	1
5	α Ceti . . .	2 53 2·3	86 36 36·5	86 36 38·1	3
6	α Persei . .	3 11 44·3	40 46 39·1	40 46 39·7	2
7	Aldebaran .	4 25 46·6	73 51 17·7	73 51 18·6	1
8	Capella . .	5 3 37·8	44 11 36·9	44 11 37·5	1
9	Rigel . .	5 6 2·2	98 24 48·5	98 24 50·3	3
10	β Tauri . .	5 15 6·8	61 33 6·5	61 33 7·4	1
11		5 15 38·7	83 49 8·0	83 49 9·5	3
12		5 22 58·3	90 26 18·0	90 26 19·7	4
13		5 27 14·3	91 19 22·9	91 19 24·6	4
14		5 31 50·1	92 2 38·0	92 2 39·7	4
15		5 45 35·6	82 38 4·1	82 38 5·3	1
16		5 46 32·9	45 4 55·9	45 4 56·7	3
17		6 37 20·9	106 28 48·5	106 28 50·5	3
18		7 23 17·6	57 43 59·1	57 44 59·9	1
19		7 30 2·2	84 19 43·3	84 19 44·8	1
20		7 34 28·5	61 33 16·8	61 33 17·6	1
21		9 18 53·5	97 53 44·4	97 53 46·2	3
22		9 58 56·3	77 10 15·6	77 10 17·0	–
23		10 52 43·5	27 17 43·7	27 17 44·1	1
24		11 40 1·7	74 26 18·1	74 26 19·3	3
25		11 44 28·6	35 19 14·9	35 19 15·6	2
26		12 6 37·2	31 59 0.3	31 59 0·9	3
27		13 15 52·9	100 14 0·4	100 14 2·2	3
28		13 16 46·8	34 8 51·2	34 8 51·9	2
29		13 40 33·5	39 47 59·6	39 48 0·4	2
30		13 59 35·9	24 46 31·4	24 46 31·9	3
31	Arcturus	14 7 35·6	69 53 29·2	69 53 30·1	1
32		14 37 15·6	62 10 27·8	62 10 28·9	3
33		14 40 54·6	105 15 14·5	105 15 16·5	4
34		14 41 6·4	105 17 56·0	105 17 58·0	4
35		14 51 19·5	15 7 15·6	15 7 15·9	1

Astronomer Royal's Catalogue continued.

No.	Names of Stars.	Right Ascension.	N. P. D. Bradley's Refraction.	N. P. D. French Refraction.	Class.
		H. M. S.			
36		15 27 12·0	62 41 0·8	62 41 1·6	1
37		15 35 33·5	83 00 36·8	83 00 38·1	1
38		16 5 5·0	93 13 49·0	93 13 50·8	3
39		16 18 34·2	116 1 43·3	116 1 45·5	4
40		17 6 35·0	75 24 0·4	75 24 1·5	1
41		17 26 25·9	37 33 48·8	37 33 49·5	2
42		17 26 43·5	77 18 11·0	77 18 12·2	1
43		17 52 30·1	38 29 10·6	38 29 11·3	2
44		18 29 22·3	3 25 11·1	3 25 11·2	3
45		18 30 57·0	55 22 31·2	51 22 31·9	1
46		18 43 33·0	56 50 12·0	56 50 13·0	1
47		18 57 16·8	76 23 31·3	76 23 32·6	2
48		19 12 29·7	22 38 58·9	22 38 59·5	2
49		19 16 34·6	87 13 47·3	87 13 48·9	2
50		19 37 50·8	79 48 39·0	79 48 40·2	2
51		19 42 8·9	81 35 29·7	81 35 30·9	1
52		19 46 37·3	84 1 40·2	84 1 41·4	2
53		20 7 49·9	103 2 49·6	103 2 51·5	4
54		20 8 13·7	103 5 6·6	103 5 8·5	4
55		20 35 24·2	45 20 52·4	45 20 53·1	1
56		20 58 58·6	52 6 55·2	52 6 56·1	3
57		21 14 21·0	28 9 43·0	28 9 43·6	1
58		21 22 14·2	96 20 38.5	96 20 40·3	2
59		21 26 20·4	20 12 53·9	20 12 54·3	1
60		21 56 41·5	91 10 31·3	91 10 33·0	1
61		22 55 57·2	75 44 41·7	75 44 42·9	1
62		23 59 15·6	61 53 12·5	61 53 13·2	1

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ASTROPECTEN, in natural history, a species of star fish, composed of a central nucleus, furrowed like the shell of the common scallop, and parting into five principal rays, from each of which issue several transverse processes, covered with a hairy down.

ASTROPODIA, the star-stone. See ASTERIA.

ASTROSCOPE, an astronomical instrument, composed of two cones, on whose surface the constellations, with their stars, are delineated, by means whereof the stars may easily be known.

ASTROSCOPIA, the art of examining the stars by telescopes. Huygens improved this art considerably. See his Astroscopia Compendiaria.

ASTROTHEMATA, in astrology, the positions of the stars in a theme of the heavens.

ASTRUC (John), a celebrated French physician, was born in 1684, at the little town of Sauves in Languedoc. He studied at the university of Montpelier, and in 1717 was in great repute there as a teacher of medicine. His fame became so considerable that the king assigned him an annual salary, and appointed him to superintend the mineral waters in Languedoc. As Montpelier, however, did not afford sufficient scope for his genius, he removed to Paris, but soon after left it, having in 1729 accepted the office of first physician to the king of Poland. Upon the death of the celebrated Geoffroy, in 1731, he was appointed Regius Professor of medicine at Paris. Of his numerous writings the following are the principal: 1. De Morbis Venereis. 2. Memoirs relative to the Natural History of Languedoc. 3. A Treatise on Pathology. 4. On Therapeutics. 5. On the Inoculation for the Small-pox. 6. On Tumors and Ulcers. 7. Origine de la Peste. 8. De motu Musculari. 9. L'Art de l'Accoucheur. 10. De motus Fermentativi. 11. Memoire sur la Digestion. 12. On the diseases of Women. The first and last have been translated into English. He died universally regretted, on the 15th of May 1766, in the eighty-second year of his age.

ASTRUM, or ASTRON, a constellation, or assemblage of stars; as distinguished from aster, a single star.

ASTRUT'. On strut. See STRUT.

> What good can the great gloton do w• his bely standing *a strote* like a taber, and his noll toty with drink. *Sir Thos. More*, fol. 98.
>
> Inflated and *astrut* with self conceit,
> He gulps the windy diet; and ere long,
> Adopting their mistake, profoundly thinks
> The world was made in vain, if not for him.
> *Cowper. The Task*, book v.

ASTURA, in ancient geography, a town of Italy, in the Campagna di Roma, which had a good harbour. Cicero lost his life in it, and prince Conradin, last heir of the house of Hohenstaufen, was taken prisoner here in 1268.

ASTURIA, an ancient kingdom of Spain, subdued by Augustus emperor of Rome.

ASTURIANS, the brave inhabitants of Asturia, who, along with those of Cantabria, asserted their liberty long after the rest of Spain had submitted to the Roman yoke. So great was their desire of liberty, that, after being closely shut up by the Roman army, they endured the most terrible calamities of famine, even to the devouring of one another, rather than submit to the enemy. At length, however, the Asturians proposed to surrender; but the Cantabrians opposed the measure, and maintained that they ought rather to die sword in hand. Upon this the two nations quarrelled, notwithstanding their desperate situation; and a battle ensuing, 10,000 of the Asturians were driven to the entrenchments of the Romans, whom they begged, in the most moving manner, to receive them on any terms. But Tiberius refusing to admit them into the camp, some of these unhappy people put an end to their lives by falling on their own swords; others, lighting great fires, threw themselves into them, while some poisoned themselves by drinking the juice of a venemous herb. The campaign being closed by the winter, the next year the Asturians summoned all their strength against the Romans; but, after frequent efforts, sometimes in conjunction with the Cantabrians, they were reduced by the imperial armies, and submitted to the Roman power till the subversion of that empire by the Goths.

ASTURIA, or ASTURIAS, anciently the kingdom of Asturia, is now a principality of modern Spain. It is bounded by Biscay on the east, Galicia on the west, Castile and Old Leon on the south, and the sea on the north. Its greatest length is about 120 miles, and its breadth 54. On the south it is separated from Castile and Old Leon by high mountains covered with woods. The province is tolerably fertile, but is thinly inhabited. It has mines of gold, lapis lazuli, and vermilion. The hereditary prince of Spain is styled Prince of the Asturias; the infant Don Henriquez, son of John I. of Castile, being the first who took that title in 1388. This principality is commonly divided into Asturia d'Oviedo, and Asturia de Santillana, so called from their principal towns; the former occupying two-thirds of the principality to the west, and being about thirty Spanish leagues in length, and eighteen in breadth; the latter the other third, sixteen leagues long and twelve broad. The climate of the whole principality is colder than the rest of Spain; but the mountains and hills, though often covered with snow during the whole winter, abound with excellent pastures, and a great variety of fruit trees. Apples are particularly abundant, and a great deal of cyder is made and exported; Spanish America alone has received 28,000 arobas of 25 lb. each yearly. But the most important branch of their agriculture is the breeding of cattle; and their horses have been celebrated for strength from the days of Martial and Silius Italicus. The Asturias contain a bishopric, 668 parishes, 36 religious houses, including 23 monasteries and nunneries, a university, 3 colleges, a royal court of justice, 4 cities, 50 towns, and 3 sea-ports, the principal of which is Gijon, together with several villages; and a population of about 350,000. In more modern history, they are celebrated for having received Pelayo and the other Christians who escaped from the Moors after the battle of Xeres de la Frontera, and who, protected by this mountainous country, bade defiance to, and finally expelled the invaders, laying in these provinces the foundation of the Spanish monarchy. Hence the Asturian nobility and gentry are possessed of some extraordinary privileges, and the inhabitants of the mountain Ancena are still distinguished by the title of 'the illustrious mountaineers.'

ASTURIAS, in zoology, a name by which some authors have called the goshawk.

ASTUTE. Lat. *astutus;* from Gr. *ασυ*, a city. Acute, penetrating, sharp. Applied to the inhabitants of a city who are supposed to be sharp-witted in consequence of having much intercourse with the chicane and craft of mankind, and are therefore prepared to contend with it.

We term those most *astute* which are most versute.
Sir M. Sandy's Ess. p. 168.

ASTYAGES, son of Cyaxares, the last king of the Medes. He dreamed, that from the womb of his daughter Mandane, married to Cambyses king of Persia, there sprung up a vine that spread itself over all Asia; and she being with child, he resolved to kill the infant as soon as born. Its name was Cyrus; but Harpagus being sent to destroy it, preserved it; which Astyages hearing of long after, he caused Harpagus to eat his own son. Harpagus, in revenge, called in Cyrus, who dethroned his grandfather, and thereby ended the monarchy of the Medes; the tyrant thus losing his kingdom by the barbarous means he took to preserve it. See MEDIA and PERSIA.

ASTYANAX, the only son of Hector and Andromache. After the taking of Troy, he was thrown from the top of a tower by Ulysses' orders

ASTYNOMI, in Grecian antiquity, magistrates in Athens, corresponding to the ædiles of the Romans; they were ten in number. See ÆDILE.

ASUNDER. On sunder.

Two indirect lines; the further that they are drawn out, the further they go *asunder*. *Spenser on Ireland.*

So looks the pent up lion o'er the wretch
That trembles under his devouring paws;
And so he walks insulting o'er his prey,
And so he comes to tear his limbs *asunder*.
Shakspeare's Third Part of Henry VI. act i. sc. 5.

The way of Fortune is like the milken way in the skie, which is a meeting or knot of a number of small stars; not seen *asunder*, but giving light together: so are there a number of little and scarce discerned vertues, or rather faculties and customes, that make men fortunate. *Lord Bacon's Essays.*

Sense thinks the planets spheres not much *asunder*;
What tells us then, their distance is so far?
Davies.

Greedy hope to find
His wish and best advantage, us *asunder*.
Paradise Lost.

The fall'n archangel, envious of our state,
Seeks hid advantage to betray us worse;
Which, when *asunder*, will not prove too hard,
For both together are each other's guard.
Dryden.

Borne far *asunder* by the tides of men,
Like adamant and steel they meet again.
Dryden's Fables.

All this metallick matter (both that which continued *asunder*, and in single corpuscles, and that which was amassed and concreted into nodules,) subsided. *Woodward's Natural History.*

The diversified but connected fabrick of universal justice is well cramped and bolted together in all parts; and depend upon it, I never have employed, and I never shall employ, any engine of power which may come into my hands, to wrench it *asunder*.
Burke.

Upon the whole, there was in this man something that could create, subvert, or reform; an understanding, a spirit, and an eloquence, to summon mankind to society, or to break the bands of slavery *asunder*, and to rule the wilderness of free minds with unbounded authority; something that could establish or overwhelm empire, and strike a blow in the world that should resound through the universe.
Grattan's Character of Lord Chatham.

ASYLA, the plural of ASYLUM. The asyla of altars and temples were very ancient; and likewise those of tombs, statues, and other monuments of considerable personages. Thus, the temple of Diana at Ephesus was a refuge for debtors; the tomb of Theseus for slaves. In order to people Rome, a celebrated asylum was opened by Romulus between the mounts Palatine and Capitoline, for all sorts of persons indiscriminately, fugitive slaves, debtors and criminals of every kind. It had a temple dedicated to the god Asylæus. The Jews had

their asyla; the most remarkable of which were, the six cities of refuge, the temple, and the altar of burnt offerings; which protected those who had incurred the lash of the law, but not for any deliberate crime. But it was customary among the heathens to allow refuge and impunity, even to the vilest and most flagrant offenders; some out of superstition, and others for the sake of peopling their cities. They had an idea, that a criminal who fled to the temple or altar, submitted his crime to the punishment of the gods; and that it would be impiety in man to take vengeance out of their hands. It was by this means, and with such inhabitants, that Thebes, Athens, and Rome, were first stocked. We even read of asyla at Lyons and Vienne, among the ancient Gauls; and there are some cities in Germany, which still preserve this ancient right. On the medals of several ancient cities, particularly in Syria, we meet with the inscription ΑΣΥΛΟΙ, to which is added ΙΕΡΑΙ. The emperors Honorius and Theodosius, granting the like immunities to churches, the bishops and monks soon selected certain tracts or territories, without which they fixed the bounds of the secular jurisdiction; and so well did they manage their privileges, that convents in a little time became a kind of fortresses, where the most notorious offenders were in safety. These privileges at length were extended, not only to the churches and churchyards, but also to the bishops' houses; whence the criminal could not be removed without a legal assurance of life, and an entire remission of the crime. At last these asyla were stripped of most of their immunities. In Great Britain particularly, they have been entirely abolished as protecting criminals, although there are still some privileged places of refuge for debtors, such as the precincts of the royal palaces, the Abbey of Holy-rood-house, Edinburgh, &c.

ASY'LUM. Gr. *α*, the privative, and *συλη*, spoil; because it was not lawful to spoil those who fled to a sanctuary.

So sacred was the church to some, that it had the right of an *asylum* or sanctuary. *Ayliffe's Parer.*

But noble dames,
In this *asylum* sojourning awhile,
Trust your own merits, and a guardian god.
Glover's Athenaid, book ii.

The adventurer knows he has not far to go before he will meet with some fortress that has been raised by sophistry for the *asylum* of error. *Hawkesworth.*

ASYLUS, the gad-fly. See ASILUS.

ASYM'METRY, ASYM'METRAL, ASYM'METROUS. A, the privative, and *συμμετρον*, proportion. Want of symmetry, disproportion.

Quantities compared with respect to such a measure, are by geometricians wont to be called *symmetrous* or *asymmetrous*, i. e. commensurable or incommensurable. *Barrow's Mathematical Lectures.*

The *asymmetries* of the brain, as well as the deformities of the legs or face, may be rectified in time. *Grew.*

ASYMPTOTE; from *α* priv. *συν*, with, and *πτοω*, to fall; which never meet; incoincident. Asymptotes are right lines, which approach nearer to some curve; but which, though they and their curve were infinitely continued, would never meet; and may be conceived as tangents to their curves at an infinite distance. See CONIC SECTIONS.

ASYNDETON, from the privative *α*, and *συνδεω*, I bind together; a figure in rhetoric, implying an omission of words, or a defect of conjunctive particles. The want of such particles represents either the celerity of an action, or the haste and eagerness of the speaker. As, in the celebrated instance, 'veni, vidi, vici,' 'I came, I saw, I conquered.'

AT. From the Latin *ad*. In its abstract sense designating completion, termination, touching the surface by approach.

For all the field was but of sand
As small as men may see *at* eye
In the desert of Libye.
Chaucer. The House of Fame, b. i. c. 3.

I speke the thingis that I saigh *at* my fadir; and ye doen the thingis that ye saighen *at* youre fadir.
Wiclif. Jon. chap. viii. p. 61.

Under pardon,
You are much more *at* task, for want of wisdom;
Than prais'd for harmless mildness. *Shakspeare.*

Others, with more helpful care,
Cried out aloud, Beware, brave youth, beware!
At this he turn'd; and, as the bull drew near,
Shunn'd and receiv'd him on his pointed spear.
Dryden.

Their various news I heard, of love and strife,
Of storms *at* sea, and travels on the shore. *Pope.*

ATABALIPA, or ATAHUALPA, the last of the Incas. On the death of his father, in 1529, he succeeded to the throne of Quito, while his brother Huascar obtained the kingdom of Peru Not long after a disagreement took place, and hostilities commenced betwixt them, in which Huascar was defeated. The Spaniards taking advantage of these disturbances, with Pizarro as their leader, invaded Peru, where they were entertained with no little hospitality by the king and the people; but, instead of making any return for his kindness, they, with their usual treachery held him in captivity. The inca, as a ransom, offered to give the Spaniards a room full of gold, and, when they had got the treasure in their possession, they, with the utmost baseness, burnt the unhappy monarch at the stake, in 1533.

ATABULUS, in physiology, a provincial wind in Apulia, of a dry pinching quality, and very noxious in its effects. The ancient naturalists speak of the Atabulus in terms of horror, on account of the ravages it made among the fruits.

ATABYRIS, a very high mountain in the island of Rhodes, on which, according to Strabo and Diodorus Siculus, stood a temple of Jupiter Atabyrius, whose worship a colony of Rhodians carried into Sicily.

ATACAMA, a chain of mountains in South America, which separate Peru from Quito, and where the cold is very violent.

ATACAMA, a province of Peru, bounded on the north by the province of Arica; east by Lipes, Salta, and Tucuman; south by a desert extending to the kingdom of Chili; and west by the South Sea. Its population is under 3000. Its chief town, of the same name, lies in long. W. 69° 30′. lat. S. 23° 30′., on a barren spot, about 100 miles from the sea.

ATACAMITE, in mineralogy, a name given to a variety of muriate of copper, found in the

district of Atacama, in minute crystals and fragments.

ATAD, a Canaanite, rendered memorable by his threshing-floor, Gen. l. 10. See ABEL-MIZRAIM.

ATALANTA, in ancient geography, an island in the Euripus of Eubœa, near the Locri Opuntii, said to have been originally a city of the Locri, but torn from the continent in the time of an earthquake, and during an eruption of mount Ætna; in the fourth year of the ninety-third Olympiad, in the reign of Artaxerxes-Mnemon.

ATALANTA, in fabulous history, the daughter of Schœneus, king of Scyros. Being resolved against marriage, and at the same time very swift of foot, she, to get rid of her numerous suitors, declared that she would marry none but the man who was willing to risk his life for her, by striving to outrun her, and to forfeit it if he failed. This several attempted and suffered accordingly. But Hippomenes, being furnished by Venus with three golden apples, dropt them at proper distances during the race, and while she stooped to gather them, gained both the race and the princess. Atalanta was present at the hunt of the Caledonian boar, and received from Meleager, who was enamoured of her, its skin and head, as a testimony of her skill in having first wounded the animal. This roused the jealousy of Toxeus and Plexippus, his uncles, who endeavoured to strip Atalanta of her honorable spoil. Meleager killed them in defence of her right; and his mother Althæa, irritated by the death of her brothers, committed to the flames the charmed brand upon which the life of Meleager depended. The goddess Venus being enraged at the ingratitude of Hippomenes, who never performed the vow he had made to erect a temple to her at Scyros, changed both him and Atalanta into lions.

ATALANTA, in entomology, a species of European papilio, of which a variety is also found in America. The wings are black, indented, and spotted with white; a red band across the anterior pair; border of the posterior pair of the same color. It is sometimes called the red admirable butterfly, and by the French Atalante.

ATALAYA DE ALAGOUTA, a town in Portuguese Estremadura, district of Thomar, with the title of county, and between 1300 and 1400 inhabitants, eighteen miles north-west of Lisbon.

ATALAYA SORTELHA, a town of Portugal, in the province of Beira, thirteen miles north-east of Castel Branco.

ATALAYAS, SANTIAGO DE LAS, the capital of the province of San Juan de los Llanos, in the kingdom of Granada. It contains 400 householders, and is nine leagues from the city of Pore.

ATANARI, a considerable river of New Granada, which enters the Mota.

ATANTA, in botany, a name given by the people of Guinea to a kind of sumach, called, by Petiver, rhus Guineense trifoliatum scabium, from its being trifoliate, and having rough and serrated leaves. They give it as a restorative boiled in water.

ATAPUERA, a town of Spain, in Old Castile, near Burgos. In 1053, a battle was fought here between Don Garcia, king of Navarre, and his brother Don Ferdinand, in which the former was defeated and slain.

ATARAXIA, ATARAXY, *αταραξια*. Exemption from vexation; tranquillity. The sceptics, says Glanville, affected an indifferent equiponderous neutrality, as the only means to their ataraxia, and freedom from passionate disturbances.

ATARGATIS FANUM, the temple of the goddess Atergatis, in Bambyce, which was extremely rich. Crassus, in his march against the Parthians, spent several days in weighing the treasure.

ATARNEA, or ATARNYA, an ancient town of Mysia, situated between Adramyttium and Pitane, memorable for the marriage of Aristotle with the sister of Hermias, the prince of it.

ATAULFUS, the first king of the Goths in Spain, established his government there, about A. D. 404, and died, A. D. 416. See SPAIN.

ATAXY, from *a* negative, and *ταξις*, order, the want of order. With physicians, it signifies irregularity of crises and paroxysms of fevers.

> Neither is there any *ataxy* to be feared in bringing in this distinction, betwixt pastors and the flock.
> *Bp. Hall's Polemical Works.*

ATCHE, in commerce, the smallest silver coin current in Turkey, worth about one-third of a penny sterling.

ATCHIEVEMENT, or ACHIEVEMENT, vulgarly called HATCHMENT. Armorial bearings in front of the houses of deceased persons.

ATCHIEVEMENT, in heraldry, denotes the arms of a person or family, together with all the exterior ornaments of the shield, as helmet, mantle, crest, scrolls, and motto, together with such quarterings as may have been acquired by alliances, all marshalled in order.

ATE; from *ατaω*, to hurt; the goddess of mischief, in the mythology. She was daughter of Jupiter, and cast down from heaven at the birth of Hercules. For Juno having deceived Jupiter, in causing Euristheus to be born before Hercules, Jupiter expressed his resentment against Ate, as the author of that mischief, and threw her headlong from heaven to earth, swearing she should never return thither again. Homeri Il. xix. 125. Her being the daughter of Jupiter means, according to mythologists, that no evil happens to us but by the permission of Providence; and her banishment to earth the terrible effects of divine justice among men.

ATEGAR; from the Saxon aeton, to throw, and gar, a weapon; a weapon among the Saxons, which seems to have been a hand-dart.

ATEGUA, or ATTEGUA, an ancient town of Spain, placed by some in the road from Antiquara, now Antequera, to Hispalis, or Seville; by others, near Alcala Real. It was situated near the river Flumen Salsum, or Salsusa. Pompey, having passed this river, encamped between Ucubis and Ategua, to oblige Cæsar to raise the siege of the latter place; but it was taken in his presence.

ATELIA, an exemption from taxes, or other burdens, is particularly used in some ancient laws, for an exemption from offices granted to the Egyptian clergy by Constantius.

ATELIA, an ancient town of Campania in Italy, between Capua and Neapolis. The ruins

are still to be seen about eleven miles from the modern Aversa.

ATELLANÆ Fabulæ, Atellani Ludi, a species of farce, so named from Atella, called also Osci, from their inventor, in whose territory Atella lay. They were generally interlarded with much ribaldry and buffoonery, and sometimes were exordia, or interludes, presented between the acts of other plays. The actors in these farces were not reckoned among the common players, nor deemed infamous; but retained the rights of their tribe, and might be enlisted for soldiers, the privilege only of free men.

ATEMPO Giusto, in music, signifies to sing or play in an equal, true, and just time.

ATENA, a town of Italy, in Naples, near the Negro, twelve miles north-west of Marsico, and twenty-two north of Policastro.

ATER, in conchology, a species of mytilus, described in Molin. Hist. Chili, p. 177, and said to be frequent on the shores of that country: also a species of strombus found in the boggy parts of the island of Amboyna.

Ater, in entomology, 1. a species of dermestes found in the neighbourhood of Upsal. 2. A species of hydrophilis, a native of Europe. 3. A species of byrrhus that inhabits Germany. 4. A species of tenebrio found in Europe. 5. A species of carabus that inhabits Denmark. 6. A species of cerambyx (Callidium, Fabr.) found in the environs of Venice. 7. A species of gryllus (Acheta, Fab.) that inhabits Surinam. 8. A species of cimex.

Ater, in natural history, a species of anguis; also a species of limax, slug or snail

Ater, in ornithology, a species of falco; also a species of psittacus.

ATERGATIS, in mythology, a goddess of the Syrians and Parthians, supposed to be the mother of Semiramis, and called Derceto by the Greeks. She was represented with the face and breasts of a woman, but the rest of her body resembled a fish. Vossius makes the name Phœnician, from addir-dag, the great fish; and says it signifies, without fish; whence he conjectures that the votaries of this deity abstained from fish.

ATERNUM, in ancient geography, 1. a town of Lucania in Italy, now called Aterni. 2. A town in the territory of the Piceni, now called Pescara, a port town of Naples, on the Adriatic.

ATERRIMA, in conchology, a species of nerita, figured by Chemnitz.

Aterrima, in entomology, 1. a species of blatta. 2. A new British species of chrysomela, described by Mr. Marsham, Ent. Brit.

Aterrimus, 1. a species of curculio, very common in Europe; black, with the wing-cases shining. Linn. Fn. Sv. Fabr., &c. 2. A species of carabus. 3. A species of elater, found in the north of Europe. 4. A species of cimex (rotundatus, sec.) that inhabits Spain.

Aterrimus, in ornithology, the specific name of the great black cockatoo of New Holland.

ATESTE, a town in the territory of Venice in Italy, now called Este.

ATH, or Æth. See Æth.

Ath, Atha, or Athe, among our Anglo-Saxon ancestors, signifies an oath, especially that taken by way of purgation. In this sense, we meet with breaking of ath, privilege of ath, atha, or ordela.

ATHABOLI, or Agastoboli, a town of Turkey in Europe, on the Black Sea, in the extensive province of Romania, sixty-eight miles north-east of Adrianople. Long. 27° 39′ E., lat. 42° 27′ N.

ATHALARIC, the grandson of Theodoric, and the second king of the Ostrogoths in Italy, succeeded A. D. 526, and reigned along with his mother Amalasuntha, about eight years. They both died A.D. 534.

ATHALIAH, עתליה, Heb. i.e. the time of the Lord; the daughter of Ahab king of Israel, by Jezebel, and wife of Jehoram king of Judah. See 2 Chron. xxi. 10, and xxiii. 12.

ATHAMADULET, or Athemadaulet, the prime minister of the Persian empire. He is great chancellor of the kingdom, president of the council, superintendant of the finances; and has the charge of all foreign affairs. He is in effect viceroy of the kingdom.

ATHAMANTA, Spignel, in botany, a genus of the digynia order, and pentandria class of plants, ranking in the natural method under the fourth order, umbellatæ. The fruit is oblong and striated; and the petals are inflected and emarginated. Of this genus Linnæus enumerates nine species: but none of them merit particular notice; except the Cretensis, or Daucus Creticus, which grows wild in the Levant and the warmer parts of Europe. The leaves are irregularly disposed, and formed like those of fennel. The flower-stalk rises about two feet high, sending out many branches, terminated at the top by compound umbels, composed of nearly twenty small ones. The seeds have a warm biting taste, with an agreeable aromatic smell. They are kept in the shops as a carminative; but are little used in practice.

ATHANASIA, Goldilocks, in botany, a genus of the polygamia æqualis order, and syngenesia class of plants; ranking in the natural method under the forty-ninth order, compositæ discoides. The receptacle is chaffy; the pappus chaffy and very short, and the calyx imbricated. There are twenty species, all tender plants except one; and none of them possessed of much beauty.

Athanasia, in ancient medicine, an epithet given to a kind of antidotes, supposed to have the power of prolonging life, even to immortality. In the Augustan dispensatory we still find a medicine under the appellation of athanasia magna, recommended against dysenteries and hæmorrhages.

Athanasia, in botany, is used by some authors for tansy.

ATHANASIAN Creed; a formulary, or confession of faith, long supposed to have been drawn up by Athanasius bishop of Alexandria, in the fourth century, to justify himself against the calumnies of his Arian enemies; but now generally allowed among the learned not to have been his. Dr. Waterland ascribes it to Hilary bishop of Arles, for the following among other reasons: 1. Because Honoratus of Marseilles, the writer

of his life, tells us, that he composed an Exposition of the Creed; a more proper title for the Athanasian, than that of Creed simply, which it now bears. 2. Hilary was a great admirer and follower of St. Austin; and the whole composition of this creed is in a manner upon St. Austin's plan, both with respect to the trinity and the incarnation. 3. It is agreeable to the style of Hilary, as far as we can judge from the little that is left of his works. About A. D. 570, it became so famous as to be commented upon; but, for several years after, it had not acquired the name of Athanasian, but was simply styled the catholic faith. This creed obtained in France about A. D. 850, and was received in Spain and Germany about 100 years later. As to our own country, we have clear proofs of its being sung alternately in our churches in the tenth century. It was in common use in some parts of Italy, particularly in the diocese of Verona, about A.D. 960, and was received at Rome about 1014. As to the Greek and oriental churches, it has been questioned whether any of them ever received this creed at all: with regard to its matter, it is given as a summary of the true orthodox faith, and a condemnation of all heresies, ancient and modern. Unhappily, however, it has proved a fruitful source of unprofitable controversy and unchristian animosity even down to the present time.

'The account given of Athanasius's creed,' says archbishop Tillotson, in a letter written from Lambeth, Oct. 23, 1694, to a right reverend prelate, 'seems to me no wise satisfactory: I wish we were well rid of it.' Bishop Taylor, in his Liberty of Prophesying, sect. ii. says, 'If it were considered, concerning Athanasius's creed, how many people understand it not, how contrary to natural reason it seems, how little the scripture says of those curiosities of explication, and how tradition was not clear on his side for the article itself, much less for those forms and minutes; it had not been amiss if the final judgment had been left to Jesus Christ: and indeed to me it seems very hard to put uncharitableness into the creed, and so to make it become as an article of faith.' 'It certainly is to be lamented,' says Dr. Tomline, the present bishop of Worcester, in his Elements of Christian Theology, vol. ii. p. 220, 'that assertions of so peremptory a nature,' referring to the damnatory clauses, 'unexplained and unqualified, should have been used in any human composition.' 'I am ready to acknowledge,' p. 222, 'that, in my judgment, notwithstanding the authority of former times, our church would have acted more wisely, and more consistently with its general principles of mildness and toleration, if it had not adopted the damnatory clauses of the Athanasian creed. Though I firmly believe that the doctrines themselves of this creed are all founded on scripture, I cannot but conceive it to be both unnecessary and presumptuous to say, that 'except every one do keep them whole and undefiled, without doubt he shall perish everlastingly'.' Dr. Horsley, late bishop of St. Asaph, avowed a similar opinion.

ATHANASIUS, St. bishop of Alexandria, and one of the most violent opponents of the Arians, was born in Egypt. He followed St. Alexander to the council of Nice, in 325, where he disputed against Arius, and the following year was made bishop of Alexandria; but, in 335, was deposed by the council of Tyre: when, having recourse to the emperor Constantine, the Arian deputies accused him of having hindered the exportation of corn from Alexandria to Constantinople; on which the emperor, without suffering him to make his defence, banished him to Treves. The emperor, two years after, ordered him to be restored to his bishopric: but, on his return to Alexandria, his enemies brought fresh accusations against him, and chose Gregory of Cappadocia to his see; which obliged Athanasius to go to Rome, to reclaim it of pope Julius. He was there declared innocent, in a council held in 342, and in that of Sardica, in 347, and two years after was restored to his see by order of the emperor Constans; but, after the death of that prince, he was again banished by Constantius, on which he retired into the deserts. The Arians then elected one George in his room; who being killed, in a popular sedition under Julian, in 360, Athanasius returned to Alexandria, but was banished under Julian, and restored to his see under Jovian. He addressed to that emperor a letter, in which he proposed, that the Nicene creed should be the standard of the orthodox faith, and condemned those who denied the divinity of the Holy Ghost. He was also banished by Valens, in 367, and afterwards recalled. He died on the 2d of May, 373. His works principally contain a defence of the mystery of the Trinity, and of the incarnation and divinity of the Word and Holy Spirit. There are three editions of his works which are esteemed; that of Commelin, printed in 1600; that of Peter Nannius, in 1627; and that of father Montfaucon.

ATHANATI, i. e. immortals; from *α*, privative, and *θανατος*, death; a body of cavalry, among the ancient Persians, consisting of 10,000 men, always complete, because when any one of them died another was immediately put into his place.

ATHANOR: Chemists have given this name to a furnace so constructed, that it can always maintain an equal heat, and lasts a long time, without addition of fresh fuel. The body of the athanor has nothing in it particular, and is constructed like ordinary furnaces. But at one of its sides, or its middle, there is an upright hollow tower, which communicates with the fire-place, by one or more sloping openings. This tower ought to have a lid, which exactly closes its upper opening. When the athanor is to be used, as much lighted coal is put in the fire-place as is judged necessary, and the tower is filled to the top with unlighted fuel. The tower is then to be exactly closed with its lid. As fast as the coal in the fire-place is consumed, that in the tower falls down and supplies its place. As the coal contained in the tower has no free communication with the external air, it cannot burn, till it falls into the fire-place. The athanor being much celebrated and used by ancient chemists, has been particularly described by many authors, and was formerly found in all laboratories. At present, this furnace is much less employed, and even neglected. The reason is, that all the

ancient chemists were in search of the art of making gold; and being excited by this powerful motive, and confident of success, they spared no trouble or expense to accomplish this design.—They undertook, without hesitation, operations which required great length of time, and unremitted heat. Whereas now, these alluring hopes having vanished, the cultivators of chemistry have no other view than to extend and perfect the theory of this essential part of natural philosophy. This motive, although undoubtedly much nobler than the former, seems, however, to be less powerful over most men. For now, all long and laborious operations, whence chemistry might receive great advantages, are neglected, as being tiresome and disgustful. There is, in fact, a considerable difference betwixt the hope of explaining a philosophical phenomenon, and that of obtaining an ingot of gold capable of producing many others. Hence the instruments employed in long operations, and particularly the athanor, are now much neglected; and also, because the fuel in the tower is apt to stick there, or fall down at once in too great quantity. The lamp furnace, which is a true athanor, may be successfully employed in operations which do not require much heat.

ATHAPESCOW, a lake in the north-west of North America, and fifty-ninth degree of north latitude, so called from a tribe of Indians inhabiting its banks. It is contiguous to the Lake of the Hills, and has now become so shallow, that, according to Mackenzie, it will in time be probably converted into a swamp.

ATHARER, in astrology, a term used when the moon is in the same degree and minute with the sun.

ATHBOY, a town of Ireland, in the county of Meath, situated on a stream of the same name. It was a borough, which returned members to the Irish parliament before the union. Three fairs are held here annually. Distant twenty-nine miles north-west of Dublin.

ATHEE, a town of France, in Anjou, with 260 houses, belonging to the arrondissement of Chateau-Gontier, in the department of Mayenne. It lies on the river Oudon, five leagues S. S. W. of Laval.

ATHEE, a town of France, in the department of the Indre and Loire, arrondissement of Tours, on the left bank of the Cher, with 255 houses, three leagues south-west of Amboise.

ATHEISM, A'THEIST, *n.* & *adj.* ATHEIST'ICAL, ATHEIST'ICALLY, ATHEIST'ICALNESS, ATHEIST'ICK, A'THEIZE, A'THEOUS. A, privative, Θεος, God; without God. One of its significations is illustrated by the following citation from St. Paul's Epistle to the Ephesians, A Θεοι εν τω κοσμω, without God in the world.

God never wrought miracles to convince *atheism*, because his ordinary works convince it. *Bacon.*

Nor stood unmindful Abdiel, to annoy
The *atheist* crew. *Milton. Paradise Lost.*

Thy Father, who is holy, wise, and pure,
Suffers the hypocrite, or *atheous* priest,
To tread his sacred courts. *Paradise Regained.*

Men are *atheistical*, because they are first vicious; and question the truth of Christianity, because they hate the practice. *South.*

Is it not enormous, that a divine, hearing a great sinner talk *atheistically*, and scoff profanely at religion, should, instead of vindicating the truth, tacitly approve the scoffer? *Id.*

Though he were really a speculative *atheist*; yet, if he would but proceed rationally, he could not however, be a practical *atheist*, nor live without God in this world. *Id.*

I entreat such as are *atheistically* inclined, to consider these things. *Tillotson.*

It is the common interest of mankind, to punish all those who would seduce men to *atheism*. *Id.*

Atheist, use thine eyes;
And, having view'd the order of the skies,
Think (if thou canst) that matter, blindly hurl'd
Without a guide, should frame this wondrous world.
Creech.

No *atheist*, as such, can be a true friend, an affectionate relation, or a loyal subject. *Bentley.*

Lord, purge out of all hearts profaneness and *atheisticalness*. *Hammond's Fundamentals.*

This argument demonstrated the existence of a Deity, and convinced all *atheistick* gainsayers. *Ray on the Creation.*

Chester, civilized as well as Wales, has demonstrated, that freedom and not servitude is the cure of anarchy; as religion, not *atheism*, is the true remedy for superstition. *Burke.*

ATHEISM, absurd and unreasonable as it is, has had its votaries and martyrs. In the seventeenth century, Spinosa, a foreigner, was its noted defender. Lucilio Vanini, an Italian, a native of Naples, publicly taught atheism in France, about the beginning of the seventeenth century; and being convicted of it at Toulouse, was condemned and executed.

An ATHEIST may be defined, a person who does not believe in any thing superior to the material world. Many people both ancient and modern, have pretended to be, or have been reckoned, atheists; but it is justly questioned whether any man ever seriously adopted such a principle. These pretensions, are often, indeed, founded on pride and affectation. Such motives, together with an honest indignation against the impositions and intolerance of superstition and priestcraft (which had so often deluged France with blood), seem to have co-operated to produce that extraordinary moral phenomenon, exhibited in the French Convention, of several of the leading members openly avowing themselves atheists; in consequence of which the whole nation was absurdly branded with atheism. Cicero, however, represents it as a probable opinion, that they, who apply themselves to philosophy, believe there are no gods. This must doubtless be meant of the academic philosophy, to which Cicero himself was attached, and which taught to doubt of every thing. On the contrary, the Newtonian philosophers, continually recur to a Deity, whom they always find at the head of their chain of natural causes. Among the modern philosophers, who have been the principal advocates for the existence of a Deity, are Sir Isaac Newton, Boyle, Cheyne, Nieuwentyt, &c. To which may be added many others, who, though of the clergy, yet have distinguished themselves by their philosophical pieces in behalf of the existence of a God; e. g. Derham, Bentley, Whiston, Ray, Samuel and John Clarke, Fenelon, &c. So true is that saying of Lord Bacon, that though a smattering of

philosophy may lead a man into atheism, a deep draught will certainly bring him back again to the belief of a God and Providence; agreeably to what the poet observes of learning in general:

'A little learning is a dangerous thing:
Drink deep, or taste not the Pierian spring.'

Archbishop Tillotson justly observes that speculative atheism is unreasonable on five accounts: 1. Because it gives no tolerable account of the existence of the world: 2. It does not give any reasonable account of the universal consent of mankind in this comprehension, that there is a God: 3. It requires more evidence for things than they are capable of giving: 4. The atheist pretends to know what no man can know: 5. Atheism contradicts itself. Under the first of these he advances the following arguments: 'I appeal to any man of reason whether any thing can be more unreasonable than obstinately to impute an effect to chance, which carries in the very face of it all the arguments and characters of a wise design and contrivance. Was ever any considerable work, in which there was required a great variety of parts, and a regular and orderly disposition of those parts, done by chance? Will chance fit means to ends, and that in ten thousand instances, and not fail in any one? How often might a man, after he had jumbled a set of letters in a bag, fling them out upon the ground before they would fall into an exact poem; yea, or so much as make a good discourse in prose? And may not a little book be as easily made as the great volume of the world? How long might a man be in sprinkling colors upon canvass with a careless hand, before they would happen to make the exact picture of a man? And is a man easier made by chance than his picture? How long might twenty thousand blind men, who should be sent out from several remote parts of England, wander up and down before they would all meet upon Salisbury plain, and fall into rank and file in the exact order of an army? Yet this is much more easy to be imagined than how the innumerable blind parts of matter should rendezvous themselves into a world. A man that sees Henry the Seventh's chapel at Westminster, might with as good reason maintain (yea, with much better, considering the vast difference betwixt that little structure and the huge fabric of the world) that it was never so contrived or built by any means, but that the stones did by chance grow into those curious figures, into which they seem to have been cut and graven; and that upon a time (as tales usually begin) the materials of that building, the stone, mortar, timber, iron, lead, and glass, happily met together; and very fortunately ranged themselves into that delicate order in which we see them now, so close compacted, that it must be a very great chance that parts them again. What would the world think of a man that should advance such an opinion as this, and write a book for it? If they would do him right, they ought to look upon him as mad, but yet with a little more reason than any man can have to say that the world was made by chance, or that the first men grew out of the earth as plants do now. For can any thing be more ridiculous, and against all reason, than to ascribe the production of men to the first fruitfulness of the earth, without so much as one instance and experiment, in any age of history, to countenance so monstrous a supposition? The thing is, at first sight, so gross and palpable, that no discourse about it can be more apparent. And yet, these shameful beggars of principles give this precarious account of the original of things; assume to themselves to be the men of reason, the great wits of the world, the only cautious and wary persons that hate to be imposed upon, that must have convincing evidence for every thing, and can admit of nothing without a clear demonstration for it.'

ATHELING, Adeling, Edling, Ethling, or Etheling; from æthel, noble, Saxon; a title among the Anglo-Saxons, properly belonging to the heir apparent to the crown. This appellation was first conferred by king Edward the Confessor on Edgar, to whom he was great uncle, when, being without any issue of his own, he intended to make him his heir. See Edgar.

ATHELNEY, an island of England, in the county of Somerset, formed by the junction of the rivers Tone and Parret, a few miles below Taunton. Alfred took refuge here while the country was overrun by the Danes, and is said to have built an abbey on the spot. Many antiquities were dug up in 1674

ATHELSTANE, a Saxon king of England, natural son of Edward the Elder, and grandson of the great Alfred. He succeeded in 925, and reigned sixteen years. There was a remarkable law passed by this prince, which shows his just sentiments of the advantages of commerce, as well as the early attention paid to it in this country: viz. that any merchant who made three voyages on his own account beyond the British Channel, should be entitled to the privilege of a thane, or gentleman.

Athelstane, king of Northumberland, or, according to Buchanan, a Danish chief, who obtained a grant of that country from king Alfred, flourished about the beginning of the ninth century; and, carrying on a predatory war in Scotland, was killed in battle by Hungus, king of the Picts, at the village since named from him Athelstaneford, near the rivulet called Lugdown Burn, which is said to be a corruption of Rug Down, and to have taken its name from the circumstance of Athelstane being rugged down, or pulled from his horse, in the battle.

ATHELSTANEFORD, a village and parish of Scotland, in the county of Haddington. It was the birth-place of Blair, the author of The Grave; and here Mr. Home was settled as parish minister, but was obliged to relinquish the living in consequence of having written the tragedy of Douglas. Distant two miles from Haddington, seventeen from Edinburgh, east.

ATHENA, in the ancient physic, a plaster or liniment commended against wounds of the head and nerves, of which we find descriptions given by Oribasius, Ælius, and Ægineta.

ATHENÆA, a feast of the ancient Greeks held in honor of Minerva, whom they called *Αθηνη*. They were afterwards called Panathenæa.

ATHENÆUM, in antiquity, a public place

wherein the professors of the liberal arts held their assemblies, the rhetoricians declaimed, and the poets rehearsed their performances. These places, of which there were a great number at Athens, were built in the manner of amphitheatres, and encompassed with seats called cunei. The three most celebrated Athenæ were those at Athens, at Rome, and at Lyons; the second of which was built by the emperor Adrian.

ATHENÆUS, a Greek grammarian, born at Naucratis in Egypt, in the third century, one of the most learned men of his time. Of all his works we have none extant but his Deipnosophis, i. e. the sophists at table; there is a great fund of facts and quotations in this work, which render it very agreeable to admirers of antiquity, as they are nowhere else to be met with.

ATHENÆUS, a mathematician, who wrote a treatise on mechanics, which is inserted in the works of the ancient mathematicians, printed at Paris in 1693, in folio, in Greek and Latin.

ATHENÆUS, a physician, born in Cilicia, contemporary with Pliny, and founder of the pneumatic sect. He taught that the fire, air, water, and earth, are not the true elements, but that their qualities are, viz. heat, cold, moisture, and dryness; and to these he added a fifth element which he called spirit, whence his sect had their name, Pneumatics.

ATHENAGORAS, an Athenian philosopher, who flourished about the middle of the second century; and was equally remarkable for his zeal for Christianity, and his great learning; as appears from the Apology which he addressed to the emperors Aurelius Antoninus and Lucius Commodus; as well as from another work still extant upon the Resurrection. They are both written in a style truly Attic.

ATHENATORIUM, among chemists, a thick glass cover placed on a cucurbit, having a slender umbo, or prominent part, which enters like a stopple, within the neck of the cucurbit.

ATHENE; Αθηνη, Greek; the name given by the Greeks to Minerva. See MINERVA.

ATHENIPPUM, in the ancient physic, a collyrium commended against divers diseases of the eyes; thus denominated from its inventor Athenippus. It is described by Scribonius Largus and Gorræus. Galen mentions another athenippum, of a different composition, by which it appears that this was a denomination common to several collyriums.

ATHENODORUS, a famous stoic philosopher, born at Tarsus, who went to the court of Augustus, and was made by him tutor to Tiberius. Augustus had a great esteem for him, and found him by experience a man of virtue and probity. He was accustomed to speak very freely to the emperor. Before he left the court to return home, he warned the emperor not to give himself up to anger, but, whenever he should be in a passion to rehearse the twenty-four letters of the alphabet before he resolved to say or do any thing. He did not live to see his bad success in the education of Tiberius.

ATHENOPOLIS, a town of the Massilienses, an ancient nation of Gaul, conjectured to be the same with Telo Martius, now Toulon.

ATHENRY, a village of Ireland, in the county of Galway, formerly a borough, and a walled town. In the year 1315 a battle was fought near this town between the English and Irish, in which the latter was defeated. In 1599 the Irish put all the inhabitants to the sword. Distant ten miles east of Galway, ninety-one from Dublin.

ATHENS.

ATHENS, in geography and ancient history, a celebrated kingdom of ancient Greece, the capital of Attica, situated 100 miles N. E. of Lacedæmon and 320 S. by W. of Constantinople. It is at present the chief town of Livadia, a province of the Turkish empire, and is seated in the Gulf of Engia, Lon. 23° 57′ E., lat. 38° 5′ N.

ORIGIN AND ANCIENT NAME.—The kingdom of Attica received the name of Ogygia, from Ogyges, commonly placed 1586 years before Christ; but Athens is scarcely mentioned in history till some time after the days of Cecrops, an Egyptian by birth, supposed to be contemporary with Moses, and affirmed by the Greeks to be the first builder of cities. This leader who appears to have either founded or new modelled the Acropolis, or ancient city, under the name of Cecropia, placed himself at the head of it, and introduced from Sais in Egypt, the worship of Neith, adopted by the people under the name of Αθηνη. In the early ages of Greece, that which was afterwards called the citadel, was the whole city, and called Polis, or 'the city,' by way of eminence.

ALTERATION OF NAME.—In the reign of Erichthonius it lost the name of Cecropia, and acquired that of Athens, from Αθηνη, the Greek name of the goddess Minerva, the Neith of the Egyptians already mentioned, who was esteemed its protectress. This old city was seated on the top of a rock in the midst of a large and pleasant plain, which, as the number of inhabitants increased, became full of buildings; which induced the distinction of Acropolis and Catopolis, i. e. of the upper and lower city. The extent of the citadel was sixty stadia; it was surrounded by olive trees, and fortified with a strong palisade; in succeeding times it was encompassed with a strong wall, in which there were one very large and eight small gates.

ORIGINAL SUCCESSION AND GOVERNMENT.—The successors of Cecrops are but imperfectly known, but, according to the most ancient traditions, they were 1. Amphictyon; 2. Erectheus I. the same as Erichthonius, the place of whose interment is still called Erectheum. It was this prince who raised an image of Minerva made of olive wood in the Cecropia, and also in honor of the goddess instituted festivals called Athenæa, to be celebrated by the twelve Attic cities. To him succeeded 3. Pandion I. 4. Erectheus II. 5. Ægeus. 6. Theseus. The last of whom established the Prytaneum, a court of judicature common to all Attica; also the Panathenæa,

sacred festivals to be observed by all the provinces in the Erechtheium every five years. His wise government increased the power and population of Athens, and finally, about the year B. C. 1300, concentrated the other eleven cities of Attica under one general government.

Introduction of Pelasgi, and Rise of Athenian Greatness.—The Pelasgi came to Athens from the North B. C. 1192, to whom those beautiful specimens of polygonal architecture are ascribed, which are found in the ancient fortresses of Greece and Italy, consisting of irregular blocks carefully adjusted to each other, without cement, whereas the Cyclopeian, with which it has been frequently confounded, is composed of masses laid together and the interstices filled up with smaller stones.

Next to the Pelasgi, Athens stands indebted for much of her early grandeur to Pisistratus, who, with his sons, founded a public library and two magnificent temples, one to Jupiter Olympus, the other to Apollo Pythias, besides which he collected and edited the works of Homer.

Invasion of Xerxes and re-building of Athens.—Athens was now rising in population and importance; possessed of considerable maritime ascendency, together with an extent of territory and influence beyond any other state in Greece, Sparta excepted, and the invasion of Xerxes served to raise her to the pinnacle of military glory. It is true the Persians at first were successful in burning and destroying the ancient city founded by Cecrops; but, after their shameful defeat at Thermopylæ, the city of Athens rose from its ruins on an enlarged and improved scale, the queen of empire, enriched by the resources of the invasion, dignified by a naval superiority, by which she commanded the islands of the Archipelago, together with the colonies of Asia, Macedonia, and Thrace, embellished by the hand of Minerva, who seems to have employed herself the fifty years intervening between the victory of Salamis and the Peloponnesian war, to beautify the city of her residence; her ancient Cecropian monuments yet remaining upon the Acropolis.

Survives the Peloponnesian War.—Themistocles restored the military works of the city, and fortified it as before. Cimon erected the Temple of Theseus, the Stoa, the Pœcile, the Dionysian Theatre, the Gymnasia, together with the ornaments of the Academy and the Agora. Pericles conferred upon it the Odeum, the Parthenon, and the Propylæa, and numerous other works, rendering it the wonder of nations. The superb glory of Athens was little injured by the war of Peloponnesus. The defeat of Ægospotami, it is true led to the destruction of the walls of Piræus, but these were shortly restored, and so skilful was Minerva that defeats as well as victories seemed to raise the political importance, and enrich the site of her favorite capital.

Ravages of Philip of Macedon.—The rise of Macedon seemed however to eclipse the glory of Athens, and her alliance with Rome was the first political blow that tended to the real injury of this ancient city. Philip of Macedon invested her before her allies could come to her succour, and as the city was too well fortified to be taken easily, he ravaged the suburbs, overthrew the temples, shrines, images, and tombs; broke the marbles which were too precious to yield to the influence of fire; the Cynosarges and the Lycæum, all the favorite retreats of pleasure and devotion were alike felled by the arm of the destroyer.

Siege by Sylla.—About 84 years B. C. during the Mithridatic war, the Roman Sylla resolved upon the conquest of Athens, and employed all Greece with her arms and treasures, to aid his design. He plundered Epidaurus and Olympia, carried away the precious deposits of Delphi, felled the groves of the Academy and the Lycæum. By means of an ill-fortified wall near Heptachalcos he passed the sacred gates at midnight, and the streets of the Cerameicus are said to have run with blood. The city however suffered little, but the destruction of the Piræan fortifications and the arsenal of Philo prevented the re-assumption of maritime power, and with that fell for ever the political importance of Athens. (Plutarch, in vitâ Syllæ). As a school of science and art, Athens nevertheless maintained her dignity among enlightened nations, and foreigners from all parts resorted there to attend the lectures of her philosophers.

Science and Architecture.—The Romans, whose taste in some respects was formed upon the Grecian models, added considerably to the embellishment of the city. Julius Cæsar erected the Propylæa of the new Agora nearly at his own expense. Statues were erected to Brutus and Cassius by the friends of those distinguished Romans. Antony endowed the capital with numerous public gifts and a large accession of insular territory; nor were Augustus and other illustrious personages in that powerful empire remiss in testifying their friendship for the city of Minerva, and some of them were even initiated into the Eleusinian mysteries (for the nature of which see Eleusinia.) Hadrian, on his elevation to the imperial dignity, was one of the greatest benefactors Athens enjoyed after the overthrow of her civil hierarchy. He finished the temple of Jupiter Olympius, which Pisistratus had begun ages before, and such was its beauty, costliness, and magnitude, that it was considered the glory of Athens; superb beyond any other structure in Greece. The temple of the winds, more properly called the Honologium, in the Agora, was the benefaction of Andronicus Cyrrhestes. A new theatre was raised by Agrippa, and another was shortly afterwards erected at the foot of the Acropolis by Herodes Atticus, the ruins of which are yet remaining. The casing of the seats of the stadium with pentelic marble, is attributed to the generous profusion of the same illustrious individual.

Splendor under the Antonines.—In the Antonine age Athens enjoyed its greatest splendor. It had been enriched by the accumulated magnificence of six centuries. The works of the age of Pericles, according to Plutarch, retained the freshness of modern buildings, and a bloom was diffused over them, which preserved their aspect untarnished. Athens, in a remarkable manner escaped the ravages and plunder which

followed the conquest of Greece, and the still more formidable dilapidations of time itself. She sat supreme amid the convulsions of states and changes of governments, rather contributing than otherwise to the imperial grandeur. Having pursued the history of Athens up to the zenith of her glory, we shall present the reader with a brief description of that eminent seat of learning and politeness, as she existed in her prosperous ages.

Appearance and Harbours.—Seated upon a gulf, Athens, commanding three harbours surrounded by dock-yards and buildings, forming a continued town more extensive than Athens itself. The first of these was the Piræus, the present Δράκων of the Greeks, the Aslán Limáni of the Turks, and the Porto Leone of the Italians. The Greek and Italian names being derived from an immense line of Pentelic marble which stood originally upon the beach, nearly thirty-five or forty stadia distant from the city, and was displaced at the Venetian siege. The harbour had three docks, Cantharos, Aphradisium, and Zea; the first derived its name from an ancient hero, the second from the goddess Venus, the third from bread corn; it was dignified with several public buildings. A stoa, including five distinct stoæ or porticos under the general name of Macra Stoa; two temples of Venus; a sanctuary of Jupiter Soter; the Hippodameia, from Hippodamus the architect, which was used as an agora or commercial exchange; two great fora or markets, one near the portico, the other near the city; the tribunal Phreathys; the bath Serangium; a deigma or maritime exchange, and a theatre, about 240 feet in diameter, some traces of which are yet remaining. The second of these harbours was Mynychia, to the east of Piræus, from which it is separated by a peninsula of the same name. It is of circular figure, and now called Stratistiki, and so strong is this promontory or peninsula by nature, that Epimenides said, if the Athenians saw what mischief it would one day produce to them, they would eat it away with their teeth. This part of Athens is adorned with a Dionysaic theatre, a temple of Diana of the Doric order, some remains of which are yet standing on the shore; also a Bendideium, probably in honor of the same goddess whose Thracian name was Bendis. The third and most ancient part was Phalerum, to the east of Mynychia, distant from the city, according to Thucydides, thirty-five stadia, and according to Pausanias twenty. It was formerly famous for the temple of Jupiter, Ceres, and Minerva Sciras, which have been long whelmed in ruin, and lost in the lapse of time.

Walls, Fortifications, &c.—Peiræeus from its natural division into three great basins, and also from its great capacity, became an object of capital importance with the Athenians; and accordingly it was fortified strongly in the second year of the Peloponnesian wars. The works which surrounded it consisted of a wall nearly seven miles in length and sixty feet in height. The long walls (Τά μακρὰ Τειχη, or Τὰ σκέλη) extended from the asty or city, on the north to Peiræeus, and on the south to Phalerum; a distance of five miles, protecting the city on every side from which any danger was apprehended. These walls ran parallel to each other at the distance of 550 feet, from the centre of the Phaleric hill in the direction of the entrance of the Acropolis. The circumference of the whole walls, including those of the ports, the city, and the long walls, appears to have been about twenty miles. These walls were surrounded with cemeteries. The asty was embraced by the streams of Ilissus and Cephisus, uniting in the marshes of Phalerum. The gates were, Melitides, Peiraicæ, Acharnicæ, Ithoniæ, Hippades, Heriææ, Diomeiæ, Diocharis, and Dipylum; called also, Thriasia, Sacræ, or Cerameicæ.

Entrance from the gate Peiraicæ.—A cenotaph to Euripides adorned the outside of the gate Peiraicæ; within it stood the Pompeion for the arrangement of processions; and the interior of the city, from this view, seemed crowded with temples, statutes, and porticoes. The Pnyx (διὰ το πεπυκνῶσθαι), in which certain popular assemblies were held, stood on the right; the road continuing through the district of Ceramicus, passed the Stoa Basileius, or portico of the king, where the Archon held his court; at which point commenced the street of Hermæ, so called from Mercury, with whose head it was said to have been adorned; and after passing a considerable distance, ended in a stoa called Pœcile, from its numerous and highly finished pictures of the taking of Troy, the battle of Marathon, the battle of Theseus and the Amazons, and the battles with the Lacedemonians at Œnoe and Argolis; to keep alive the remembrance of which the captured shields were also suspended.

Agora.—The Agora, fronting the Pœcile, was planted with trees, and beautifully divided into markets, streets, porticoes, public halls, &c. One of these halls was for the assembling of the senate, another for the Prytanes to dine. Here stood a noble temple, also, to the mother of the gods, and altars to the twelve gods, to Pity, Modesty, Fame, and Impetuosity. The Areopagus sloped down from the north to a beautiful plane, where stood the temple of Theseus. It was called Mars Hill, because Mars was the first person tried here for murder, viz. for the murder of Hallirhotius. The Theseium, from its beautiful remains, must have been a most magnificent spot. It is a peripteral hexastyle, having on the sides thirteen columns of the doric order, each three feet four inches diameter at the base. The whole building is of pentelic marble, thirty feet in height, from the base to the summit of the pediment. The cell is forty feet in length, and twenty in breadth; the depth of the posticum is twenty-seven feet; that of the pronaos and portico thirty three. Contiguous to the Theseium were the Gymnasium of Ptolemy, the temple of the Dioscuri, and the Horologium of Andronicus Cyrrhestes. To the south-east stood the Prytaneum or Senate house, from which, the street of the tripods led to the theatre of Bacchus. This street was adorned by the victors in the prize games, and amongst its magnificent decorations stood the choragic monument of Lysicrates (the lantern of Demosthenes), the circular roof of which still preserves the triangular apex, intended to receive his native tripod. Adjoining to the theatre above mentioned stood the Odeum

of Pericles, from which, after passing through a gateway erected by Hadrian in the modern walls, arose the temple of Jupiter Olympius, which was completed and dedicated by the same emperor. It was of decastyle construction consisting of one hundred and twenty-four columns, sixteen of which are yet standing. Within it was a colossal statue of the god, made of ivory and gold (chryselephantine). The whole length of the sacred precinct (περιβολος) was 689 feet, and its circuit about half a mile.

The Hill Musæum. — The fountain of Enneacrunos or Callirrhoe, the only natural spring by which Athens was supplied with palatable water, was on the Ilissus; from which, proceeding to the south-west angle of the walls we come to the hill Musæum, the summit of which is embellished by a monument of the Syrian C. J. Antiochus Philopappus, grandson of Antiochus IV. the last king of Comagene. He erected it on his return to Athens, after having been greatly honored by Trajan at Rome, and even made Consul and Frater Arvalis. The lower part was embellished with the grand triumph of his illustrious patron; above which were seated statues of himself, his grandfather Antiochus, and Seleucus Nicator, founder of the original dynasty. This monument has excited a degree of attention little inferior to that of Lysicrates above-mentioned.

Acropolis.—On the north-east side of the Musæm, rises the Acropolis or ancient citadel. The rock is lofty, abrupt, and inaccessible, except the front, which is toward the Piræus; but furnishes a very ample field to the virtuosi. It was filled with monuments of Athenian glory, and exhibited an amazing display of beauty, of opulence, and of art. Heliodorus, named Periegetes the guide, has employed on it fifteen books. The curiosities of various kinds, with the pictures, statues, and pieces of sculpture, were so many and so remarkable as to supply Polemo Periegetes with matter for four volumes; and Strabo affirms, that as many would be required in treating of other portions of Athens and of Attica. In particular, the number of statues was prodigious. Tiberius Nero, who was fond of images, plundered the Acropolis as well as Delphi and Olympia; yet Athens, and each of these places, had not fewer than 3000 remaining in the time of Pliny. Even Pausanias seems here to be distressed by the multiplicity of his subject. But this banquet of the senses has long been withdrawn; and is now become like the tale of a vision. The spectator views with concern the marble ruins intermixed with mean flat-roofed cottages, and extant amid rubbish; the sad memorials of a nobler people; which, however, as visible from the sea, should have introduced modern Athens to more early notice. The Acropolis has only one entrance, which fronts the Piræus. The ascent is by traverses and rude fortifications furnished with cannon, but without carriages, and neglected. By the second gate is the station of the guard. Over this gate-way is an inscription in large characters on a stone turned upside down, recording a present of a pair of gates. Going farther up, you come to the ruins of the propylæa, an edifice which graced the entrance into the citadel. No fewer than four temples were to be passed in this ascent, those of Æsculapius, Themis, Venus and Peitho, also of Tellus and Ceres. Two equestrian statues stood in front of the wings of the propylæa, supposed to represent Marcus Agrippa, and Caius Cæsar Octavianus. The propylæa was one of the structures of Pericles, who began it when Euthymenes was archon, 435 years before Christ, and completed it in five years, at the expense of 2012 talents. It was of marble of the Doric order, and had five doors, to afford an easy passage to the multitudes which resorted on business or devotion to the Acropolis Six fluted Doric columns raised on four steps, supported the central pediment, each five feet in diameter, twenty-nine in height, and seven in their intercolumniation, except between the two central columns, where was a space of thirteen feet, for the admission of carriages. Behind was a vestibule forty-three feet in depth, sustained by a double row of six Ionic columns, three and a half feet diameter, and thirty-four in height, three of which were placed on each side, whilst marble beams depending on the lateral walls and columns, supported a painted ceiling of exquisite workmanship. The doors contiguous to the frontage, opened into a portico of the depth of eighteen feet, upon a level of five steps ascent, from which a single step descended to the platform of the Acropolis. The middle door occupied the whole space between the central columns. The next door on each side was of inferior dimensions, and the two extreme doors proportionally smaller. The portico itself consisted of a large square room roofed with slabs of marble which were laid on two great marble beams, and sustained by four beautiful columns. These were Ionic, the proportions of that order best suiting the purpose as taller than the Doric. The roof which so exquisitely embellished the building, after standing above 2000 years, was with all the pediments destroyed in 1687 by the Venetian siege. The right wing of the propylæa is said to have been a temple of Victory. The Athenians related that Ægeus stood there, viewing the sea, anxious for the return of his son Theseus from Crete, and precipitated himself at the sight of the black sails. The idol was named Victory without wings, because the news of the success of Theseus did not arrive but with the conqueror. It had a pomegranate in the right hand, and an helmet in the left. As the statue was without pinions, it was hoped the goddess would remain for ever on the spot. On the left wing of the Propylæa, and fronting the temple of Victory, was a building decorated with paintings by Polygnotus, of which an account is given by Pausanias. This edifice, as well as the temple, was of the Doric order, the columns fluted, and without bases. Both contributed alike to the uniformity and grandeur of the design; and the whole fabric, when finished, was deemed equally magnificent and ornamental. Its roof of white marble, was unsurpassed both in the size of the stones, and in the beauty of their arrangement. On the northern side of the Acropolis within the propylæa, stood the celebrated statue of Mi-

nerva Promachus, executed by Phidias after the battle of Marathon. Its height together with the pedestal exceeded seventy feet, rising considerably above the summit of the parthenon; the crest of the helmet and point of the spear being seen out at sea, by persons sailing from Servium towards Athens; and a brazen quadriga stood near the statue in commemoration of the victory of the Athenians over the Bœtians and the Chalcidenses. See Her. v. 79.

The propylæa, according to the Greek historians, took five years in building, and was formed after the designs of Mnesicles. It was completed 437 years B.C. and was estimated by Heliodorus, as cited by Harpocration, at 2012 talents, or £452,700 sterling, and was the most expensive of all the works of Pericles.

Parthenon.—But the chief glory of the Acropolis is said to have been the Parthenon, or temple of Minerva, so elevated that the pavement of its peristyle was on a level with the capitals of the eastern portico of the propylæa. It was a peripteral octostyle of the Doric order, with seventeen columns on the sides, each six feet two inches in diameter at the base, and thirty-four feet in height, elevated on three steps. Within the peristyle, at each end stood six columns of 5½ feet diameter, forming a vestibule to the cell which rose two steps from the peristyle level. The cell itself contained two chambers of sixty-two feet six inches in width, and of lengths differing from forty-three feet ten inches, to ninety-eight feet seven inches, the roof of the former being supported by four columns of four feet diameter, and of the latter by sixteen of three feet diameter. The height of the temple from the base to the pediment being fifty-six feet, and the dimensions of the area 228 feet, by 102. The pediment contained two compositions of about eighty feet in length, each containing upwards of twenty colossal statues, in two groups, the first representing the birth of the goddess Minerva, and the second her contest with Neptune, for the government of Attica. The figures of the western pediment enumerating them from the left were Cecrops, Aglaurus, Theseus, Hebe, Eresichthon, Pandrosus, Victory without wings drawn in a Biga by two horses, Erechtheus, Minerva and Jupiter in the centre, and to the right, Neptune, Thalassa, Latona, Mercury, Maia, Vesta, Mars and Venus. The figures which occupied the eastern pediment have never been perfectly ascertained. Some of them, however, were Hyperion, Hercules, Venus, Iris, Peitho, Vesta, Proserpine, Victory with wings, Ceres, and the car of Night. The frieze advancing in two parallel columns from west to east, was sculptured on both sides, and contained a representation of the Panathenaic procession. Six seated figures of deities also represented the head of each column, while the central group represented the presentation of the peplus to the second archon. Of the ninety-two metopes which anciently adorned the frieze of the peristyle, these on the south side, some of which are now in the British Museum, contained each a centaur, and hence those only of the eastern side have been assigned to the actions of Minerva; those of the western to some other point of Athenian history, the subject of which has been lost; those of the northern to the Amazonian war; those of the southern to the war with the Centaurs. A chryselephantine statue of Minerva stood in the Opis, thodomos thirty-nine feet in height, the buskins sculptured with the battle of the Centaurs, and the Ægis which lay at her feet containing a representation of the battle of the Amazons on the outside, and on the inside that of the Titans. Ictinus is said to have been the architect of this temple; Phidias the artist; and the entire cost one million and a half sterling. The remains of this beautiful specimen of ancient architecture have been described by Dr. Chandler, a few extracts from whose observations we shall subjoin. 'The chief ornament,' he observes, 'of the Acropolis was the Parthenon or great temple of Minerva, a most superb and magnificent fabric. The Persians had burned the edifice, which before occupied the site, and was called hecatompedon, from its being 100 feet square. The zeal of Pericles and of all the Athenians was exerted in providing a far more ample and glorious residence for their favorite goddess. The architects were Callicrates and Ictinus; it was of white marble, of the Doric order, the columns fluted and without bases, the number in front eight; and adorned with admirable sculpture. The story of the birth of Minerva was carved in the front pediment; and in the back, the contest with Neptune for the country. The statue of Minerva, made for this temple by Phidias, was of ivory, twenty-six cubits or thirty-nine feet high. It was decked with pure gold to the amount of forty-four talents, so disposed by the advice of Pericles as to be taken off and weighed, if required. This image was placed in the temple in the first year of the eighty-seventh Olympiad, in which the Peloponnesian war began. The gold was stripped off by the tyrant Lachares, when Demetrius Poliorcetes compelled him to fly. The same plunderer plucked down the golden shields in the Acropolis, and carried away the golden Victories, with the precious vessels and ornaments provided for the Panathenæan festival. The Parthenon remained entire for many ages after it was deprived of the goddess. The Christians converted it into a church, and the Mahommedans into a mosque. It is mentioned in the letters of Crusius, and miscalled the Pantheon, and the temple of the unknown God. The Venetians under Koningsmark, when they besieged the acropolis in 1687, threw a bomb, which demolished the roof, and setting fire to some powder, did much damage to the fabric. The floor, which is indented, still witnesses the place of its fall. This was the sad forerunner of farther destruction; the Turks breaking the stones, and applying them to the building of a new mosque, which stands within the ruin, or to the repairing of their houses and the walls of the fortress. The vast pile of ponderous materials, which lay ready, is greatly diminished; and the whole structure will gradually be consumed and disappear. The temple of Minerva in 1676 was, as Wheeler and Spon assert, the finest mosque in the world, without comparison. The Greeks had adapted the fabric to their ceremonial by constructing at one end a

semicircular recess for the holy tables, with a window: for before it was enlightened only by the door, obscurity being preferred under the heathen ritual, except on festivals, when it yielded to splendid illuminations; the reason, it has been surmised, why temples are commonly found simple and unadorned on the insides. In the wall beneath the window were inserted two pieces of the stone called phengites, a species of marble discovered in Cappadocia in the time of Nero; and so transparent that he erected with it a temple to Fortune, which was luminous within, when the door was shut. These pieces were perforated, and the light which entered was tinged with a reddish or yellowish hue. The picture of the Panagia or Virgin Mary, in Mosaic, on the ceiling of the recess, remained; with two jasper columns belonging to the screen, which had separated that part from the nave; and within, a canopy supported by four pillars of porphyry, with Corinthian capitals of white marble, under which the table had been placed; and behind it, beneath the window, a marble chair for the archbishop; and also a pulpit, standing on four small pillars in the middle aisle. The Turks had white-washed the walls, to obliterate the portraits of saints, and the other paintings with which the Greeks decorate their places of worship; and had erected a pulpit on the right hand for the iman or reader. The roof was disposed in square compartments; the stones massive; and some had fallen in. It had been sustained in the Pronaos by six columns; but the place of one was then supplied by a large pile of rude masonry, the Turks not having been able to fill up the gap more worthily. The roof of the naos was supported by colonnades ranging with the door, and on each side; consisting of twenty-two pillars below, and of twenty-three above. The odd one was over the entrance, which by that disposition was left wide and unembarrassed. In the portico were suspended a few lamps, to be used in the mosque at the seasons when the Mussulmans assemble before day-break, or to be lighted up round the minaret, as is the custom during the Ramazan or Lent. It is not easy to conceive a more striking object than the Parthenon, though now a mere ruin. The columns within the naos have all been removed: but on the floor may be seen the circles which directed the workmen in placing them; and at the farther end is a groove across it, as for one of the partitions of the cell. The recess erected by the Christians is demolished; and from the rubbish of the ceiling, the Turkish boys collect bits of the Mosaic, of different colors, which composed the picture. We are told at Smyrna, that this substance had taken a polish, and been set in buckles. This cell is about half demolished; and in the columns which surround it, is a large gap near the middle. On the walls are some traces of the paintings. Before the portico is a reservoir sunk in the rock, to supply the Turks with water for the purifications customary on entering their mosques. In it, on the left hand, is the rubbish of the pile erected to supply the place of a column; and on the right a staircase which leads out on the architrave, and has a marble or two with inscriptions, but worn so as not to be legible. It belonged to the minaret, which has been destroyed. The travellers, to whom we are indebted for an account of the mosque, have likewise given a description of the sculpture then remaining in the front. In the middle of the pediment was seen a bearded Jupiter, with a majestic countenance, standing, and naked; the right arm broken. The thunderbolt, it has been supposed, was placed in that hand, and the eagle between his feet. On his right was a figure, it is conjectured, of Victory, clothed to the mid-leg; the head and arms gone. This was leading on the horses of a car, in which Minerva sat, young and unarmed; her head-dress, instead of a helmet, resembling that of a Venus. The generous ardor and lively spirit visible in this pair of celestial steeds, was such as bespoke the hand of a master, bold and delicate, of a Phidias or Praxiteles. Behind Minerva was a female figure, without a head, sitting, with an infant in her lap; and in this angle of the pediment was the emperor Hadrian with his arm round Sabina, both reclining, and seeming to regard Minerva with pleasure. On the left side of Jupiter were five or six other trunks to complete the assembly of deities into which he received her. These figures were all wonderfully carved, and appeared as big as life. Hadrian and his consort, it is likely, were complimented by the Athenians with places among the marble gods in the pediment, as benefactors. Both of them may be considered as intruders on the original company; and possibly their heads were placed on trunks, which before had other owners. They still possess their corner, and are easy to be recognised, though not unimpaired. The rest of the statues are defaced, removed, or fallen. Morosini was ambitious to enrich Venice with the spoils of Athens; and by an attempt to take down the principal group, hastened their ruin. In the other pediment is a head or two of sea-horses finely executed, with some mutilated figures; and on the architrave beneath them are marks of the fixtures of votive offerings, perhaps of the golden shields, or of festoons suspended on solemn occasions, when the temple was dressed out to receive the votaries of the goddess.'

Erechtheium.—The erechtheium, about 160 feet north of the parthenon, containing the united temples of Minerva, Polias Pandrosus, or, according to some writers, Neptune, was of irregular figure, the eastern front of which presented a hexastyle Ionic colonnade, the western being pseudo-peripteral, and the entablature supported by half columns. Two deities are supposed to have inhabited two great divisions in the interior. The Pandrosseium (according to some) on the western side, opened into porticoes to the north and south; the former being tetrastyle, and the latter supported by six caryatides. This beautiful edifice was small, the entire area not exceeding sixty-three feet by thirty-six, nor the height twenty. Here was preserved the mark of Neptune's trident, which struck when the horse issued forth; also the olive-tree of Minerva; an image of the goddess which fell from heaven, before which was suspended a golden lamp, the wick of which, being Carpathian flax, never consumed, and required oil but once a

year; together with a brazen palm-tree above it, which carried off the smoke; the wooden Hermes presented by Cecrops; the chair by Dædalus; the scimitar of Mardonius; the breastplate of Masistrus, who commanded the Median cavalry at Platæa; and numerous groups of statues.

As Dr. Chandler's description of this celebrated depository of arts, at the time of his visit, is highly interesting, we shall again refer the reader to that authority. 'Neptune and Minerva,' observes the Dr. 'once rival deities, were joint and amicable tenants of the Erechtheium, in which was an altar of Oblivion. The building was double, a partition wall dividing it into two temples, which fronted different ways. One was the temple of Neptune Erechtheus, the other of Minerva Polias. The latter was entered by a square portico connected with the marble skreen, which fronts towards the propylæa. The door of the cell was on the left hand; and at the further end of the passage was a door, leading down into the Pandroseum, which was contiguous. Before the temple of Neptune Erectheus, was an altar of Jupiter the supreme, on which no living thing was sacrificed, but they offered cakes without wine. Within it was the altar of Neptune Erectheus; and two, belonging to Vulcan, and a hero named Butes, who had transmitted the priesthood to his posterity, which were called Butadæ. On the walls were painting of this illustrious family, from which the priestess of Minerva Polias was also taken. It was asserted, that Neptune had ordained the well of salt water, and the figure of a trident in the rock, to be memorials of his contending for the country. The former, Pausanias remarks, was no great wonder, for other wells of a similar nature, were found inland; but this, when the south wind blew, afforded the sound of waves. The temple of Minerva Polias was dedicated by all Attica, and possessed the most ancient statue of the goddess. This temple was burned when Callias was Archon, twenty-four years after the death of Pericles. Near it was the tomb of Cecrops, and within it Erectheus was buried. The ruin of the Erectheum is of white marble; the architectural ornaments of very exquisite workmanship, and uncommonly curious. The columns of the front of the temple of Neptune are standing with the architrave; and also the skreen and portico of Minerva Polias, with a portion of the cell, retaining traces of the partition wall. The order is Ionic. An edifice revered by ancient Attica, as holy in the highest degree, was, in 1676, the dwelling of a Turkish family, and is now deserted and neglected; but many ponderous stones and rubbish must be removed before the well and trident would appear. The former, at least, might probably be discovered. The portico is used as a powder magazine; but we obtained permission to dig and to examine the outside. The door-way of the vestibule is walled up, and the soil risen nearly to the top of the door-way of the Pandroseum. By the portico is a battery commanding the town, from which ascends an amusing hum. The Turks fire from it, to give notice of the commencement of Ramazan, or of their Lent, and of Bairam, or the holy days.'

Schools, Gymnasia, &c.—The schools and places of public instruction of Athens during her prosperity were several: the most celebrated were two called Ceramicus; one within the city, containing a multitude of buildings of all sorts; the other in the suburbs, in which was the academy and other edifices. There were many gymnasia in Athens; the most remarkable were the Lyceum, Academia, and Cynosarges. The Lyceum stood on the banks of Ilissus; some say it was built by Pisistratus, others by Pericles, others by Lycurgus. Here Aristotle taught philosophy, instructing such as came to hear him as they walked, whence his disciples derived the name of Peripatetics. It was also the place where the Polemarch kept his court, and the chief gymnasium of the Athenian youth. The ceramicus without the city was six stadia from its walls. The academy made part thereof. It was a marshy unwholesome place till Cimon got it drained, and then it became extremely pleasant and delightful, being adorned with shady walks, where Plato read his lectures, and from thence his scholars were styled Academics. The Cynosarges, sacred to Hercules, and commonly considered as the position occupied by the Athenians after the battle of Marathon, when the Persians sailed to Phalerum, was a place in the suburbs not far from the Lyceum; it was famous on many accounts, but particularly for a noble gymnasium erected there, appointed for the special use of such as were Athenians only by one side. Themistocles got much ill-will by carrying many of the nobility to exercise with him here, because, being but of the half-blood he could exercise nowhere else but in this gymnasium. Antisthenes instituted a sect of philosophers, who from the name of this district, as many think, were styled Cynics.

Of the walls of the acropolis the southern is called the Cimonian and the northern the Pelasgic; both commonly attributed to Cimon and Themistocles. A few rude fragments of the ancient Hecatompedum are still remaining in the latter, of Doric architecture, supposed to be the workmanship of the original Pelasgi, who first fortified the citadel anterior to the invasion of the Persians. On the northern side of the Propylæa is still to be seen an ancient grotto, consecrated to Apollo and Pan, in which the former received the favors of Creusa, daughter of Erectheus. It was descended by a flight of steps.

The other remarkable places and erections are the Stadium, south of the Lyceum, constructed by Lycurgus for the contest of the panathenaic festival, 350 B. C., and afterwards covered with marble by Herodes Atticus. It measured 675 feet by 130, and was capable of accommodating upwards of 25,000 persons. The temple of the Eumenides stood upon the hill Colonos, sacred to Neptune, and celebrated in the history of Œdipus. It was about a mile and a quarter north of the walls, and between it and the city lay the sepulchral plain. To the east rises a hill, supposed to be the mount Anchesmus of the ancients, and at present one of the most remarkable features of modern Athens, occupied by the church of St. George.

Remains of the Temple of Jupiter Olympius.—The ruins of the temple of Jupiter Olym-

pius and several other remarkable antiquities are thus described by the celebrated gentleman to whom we have already referred. 'The ruin of the temple of Jupiter Olympius,' says he, 'consists of prodigious columns, tall and beautiful, of the Corinthian order, fluted; some single, some supporting their architraves; with a few massive marbles beneath; the remnant of a vast heap, which only many ages could have consumed and reduced into so scanty a compass. The columns are of very extraordinary dimensions, being about six feet in diameter, and nearly sixty in height. The number, without the cell, was 116 or 120. Seventeen were standing in 1676; but, a few years before we arrived, one was overturned with much difficulty, and applied to the building a new mosque in the bazar or market-place. This violence was avenged by the bashaw of Negropont, who made it a pretext for extorting from the vaiwode, or governor, fifteen purses; the pillar being, he alleged, the property of their master, the grand seignior. It was an angular column and of consequence in determining the dimensions of the fabric. We regretted that the fall of this mighty mass had not been postponed until we came, as it would have afforded an opportunity of inspecting and measuring some members which we found far too lofty to be attempted. On a piece of the architrave, supported by a couple of columns, are two parallel walls of modern masonry, arched about the middle, and again near the top. You are told it has been the habitation of a hermit, doubtless of a Stylites; but of whatever building it has been part, and for whatever purpose designed, it must have been erected thus high in air while the immense ruin of this huge structure was yet scarcely diminished, and the heap inclined so as to render it accessible. It was remarked that two stones in a step in the front had coalesced at the extremity, so that no juncture could be perceived; and the like was discovered also in a step of the Parthenon. In both instances it may be attributed to a concretory fluid, which pervades the marble in the quarry. Some portion remaining in the pieces when taken green, as it were, and placed in mutual contact, it exuded and united them by a process similar to that in a bone of an animal when broken and properly set. Besides the more stable antiquities, many detatched pieces are found in the town, by the fountains, in the streets, the walls, the houses, and churches. Among these are fragments of sculpture, a marble chair or two, which probably belonged to the gymnasia or theatres; a sun-dial at the catholicon, or cathedral, inscribed with the name of the maker; and, at the archiepiscopal house close by, a very curious vessel of marble, used as a cistern to receive water, but once serving, it is likely, as a public standard or measure. Many columns occur with some maimed statues and pedestals, several with inscriptions, and almost buried in earth. A custom has prevailed, as at Chios, of fixing in the wall, over the gateways and doors of the houses, carved stones, most of which exhibit the funeral supper. In the courts of the houses lie many round stelæ or pillars, once placed on the graves of the Athenians; and a great number are still to be seen applied to the same use in the Turkish burying-grounds before the acropolis. These generally have concise inscriptions containing the name of the person, and of the town and tribe to which the deceased belonged. Another species, which resembles our modern head-stones, is sometimes adorned with sculpture, and has an epitaph in verse. We saw a few mutilated hermæ. These were busts on long quadrangular bases, the heads frequently of brass invented by the Athenians. At first they were made to represent only Hermes or Mercury, and designed as guardians of the sepulchres in which they were lodged, but afterwards the houses, streets, and porticoes of Athens, were adorned with them, and rendered venerable by a multitude of portraits of illustrious men and women, of heroes, and of gods; and it is related that Hipparchus, son of Pisistratus, erected them in demi or borough towns, and by the road side, inscribed with moral apophthegms in elegiac verse; thus making them vehicles of instruction.'

Decline of Athens.—The decline of Athens, one of the most remarkable subjects of history, was occasioned by that great revolution which took place in the moral world upon the propagation of Christianity and the consequent annihilation of those idolatrous superstitions which had been handed down from the ages bordering on the deluge. The general conduct of the early Christians, wherever their influence extended, was to destroy all works of pagan architecture dedicated to the purposes of superstition, whilst, by propagating the gospel and thoroughly extinguishing the principles that gave birth to them, no hope remained of their reproduction. At Athens, however, the early Byzantine emperors forbore to destroy these sacred edifices, and in lieu of it consecrated them to the Christian cause. Even Alaric used every effort for the preservation of Athens, and the noble statue of Minerva Promachus still crowned the city and towered above the uninjured Parthenon at the close of the fourth century. During the ducal government of the Franks, however, the city dwindled to the rank of a provincial town, and in 1436 Omar took possession of it in the name of Mahomet. This was shortly followed by the ruin of the city and the demolition of those stupendous works of art which had been the wonder of so many ages.

Venetian Invasion.—In 1687 the Venetians, as already intimated, under count Koningsmark, a Swede, besieged the acropolis. The explosion of the beautiful temple of Victory without wings, (νικη απτερος) the frieze of which is now in the British Museum, followed the bombardment; an explosion of the Parthenon followed; the eastern wall and statues of that pediment were thrown to the ground; the middle of the temple was destroyed; the western front considerably shaken, and little less except part of the opisthodomos and a few of the lateral columns of the peristyle adjoining the cell were left standing. These two celebrated temples, which had been used by the Turks as powder-magazines, constituted the chief glory of Athens, and after the destruction of these she surrendered. During

the short time the Venetians held possession of the city several ancient monuments were destroyed. A celebrated car of Victory, which stood on the western pediment of the Parthenon, with horses of a natural size, was taken down by the Doge Morosini, with a view of being removed to Venice, but in lowering it to the ground the engineers suffered it to fall, by which it was entirely destroyed.

Knowledge of Athenian Antiquities in Europe.—The antiquities and works of Athens were little noticed in Europe till the close of the 17th century. The accounts received by means of travellers had been mostly perplexed and mistaken. Some called the Parthenon the pantheon, and described it to be oval, others thought it the temple of the unknown God, mentioned in the narrative of the apostle Paul. Sir G. Wheeler, and Dr. Spon, who visited Athens before the Venetian siege, were the first who by their description of the city impressed European nations with the great value of these celebrated remains. The Dillettanti society employed Dr. Chandler, already quoted, to visit this famous depository of the sciences, and examine its antiquities and topography. Mr. Stuart, an ingenious artist, also went over from England, and employed three years in studying and forming correct drawings of its principal remains.

Laudable Efforts of Lord Elgin.—Lord Elgin, on his appointment as ambassador to the Porte in 1799, established a society of distinguished artists in Athens, who in three years presented him with a complete body of finished drawings of the plans and details of the most important monuments and remains, accompanied by just admeasurements of the elevation and extent, besides bas reliefs and characteristic features of Athenian architecture, moulded from the originals, in which they were the more diligent, as the Turks from motives of avarice were in the habit of breaking up marbles, in the hope of finding some hidden treasure under them, and of defacing the most perfect sculptures from motives of superstition. The British ambassador, who appears to have been a man of taste and genius, employed his interest at the Porte in obtaining permission to remove some of the most valuable marbles, and transfer them to England, the French having removed some valuable deposits to the gallery of the Louvre.

Lord Elgin's Collection of Antiquities, &c.—Lord Elgin's collection consisted chiefly of the following articles: Several original Metopes from the interior frieze of the Parthenon, descriptive of the combat between the Centaurs and the Lapithæ; part of the outer frieze of the same temple, representing the procession at the Panathenaic festival, both of which occupied the pediments of the eastern and western fronts, the former being in such high relief as to seem groups of statues. Several inscriptions after the Kionedon manner, in which singular care is taken to preserve an equal number of letters in each line, occasionally even to the division of monosyllables. A Doric capital, assizes of the columns, a triglyph, some of the modules of the cornice, and a few of the marble tiles (antefixa,) which roofed the original ambulatory. Models of the metopes in the temple of Theseus, containing the labors of Theseus and Hercules, taken from the interior frieze, representing the battle of the Centaurs and Lapithæ; together with several incidents of the battle of Marathon. The temple being in a considerable state of preservation, the originals could not be obtained. In addition to these he obtained from the vestibule of the temple of Neptune, and that of Minerva Polias, in the Erechtheium, a capital, a base, and some original blocks of the frieze and cornice, with plans of the architecture, &c. From the adjoining Pandroseium, one of the Caryatides. From the temple of the bearded Bacchus, a statue of the god, and a sun-dial, said to have existed in the time of the tragedians. The convents and other buildings furnished bronzes, cameos, intaglios, and medals. Besides the above laudable undertakings, he traced the walls of the city, made extensive excavations, and, from the numerous tumuli which opened in the suburbs, formed a magnificent collection of the vases hitherto improperly denominated Etruscan. But perhaps one of his most successful efforts was the removing of the celebrated Boustrophedon inscription, which anciently adorned the Sigean promontory. This celebrated monument had for some time formed a seat at the door of a Greek chapel, and was the resort of persons afflicted with the ague; the letters having been nearly obliterated by the numbers of patients who had reclined upon it. The most valuable part of his collection has been thought by some to be a complete series of Doric, Ionic, and Corinthian capitals, from the birth of Athenian architecture to its greatest height under Pericles. The same gentleman obtained some fragments of the temple of Victory without wings, on the right of the propylæa, representing scenes from the battles of Marathon, Salamis, and Platæa, which had been built in the wall of a powder magazine; the finest blocks of the whole being placed in an inverted position. These and some other sculptures were afterwards embarked for England, but unhappily wrecked off the island of Cerigo. Many cases however by the assistance of the most expert divers were obtained from the vessel, at the depth of twenty fathoms of water, and the remainder, although two successive winters of laborious exertion were employed about them, were left upon the wreck. On the acquisition of so numerous a collection of remains from the most valuable part of Athenian antiquity, the British ambassador conceived the idea of engaging the most distinguished of the modern artists, to attempt their restoration. but they declined the task. Canova, in particular, affirmed that the marbles of the ancient parthenon had never been retouched, and were so superior in their style of execution, that it would be sacrilege for any man to presume to violate them with a chisel. They were therefore transported to England as Athenian originals, and purchased by a £35,000 grant of Parliament, to enrich the British Museum, where they still remain to guide the improvements of taste, and excite the emulation of modern genius.

Present State of Athens.—The present state of Athens, like that of most other celebra-

ted cities of antiquity, exhibits a remarkable spectacle of fallen greatness. It is incorporated in the Turkish empire, and placed under the government of a waywode, or lieutenant, who is chief black eunuch of the seraglio. The town is surrounded by an insignificant wall, about ten feet in height, far short of the dimension of its ancient circumference. The streets are narrow. The population is diminished to one-tenth of its number in the time of Demosthenes, said to have been 116,000; and the beautiful Acropolis, converted into a Turkish fortress, is disfigured by a huge Venetian tower, the architecture of which looks the more barbarous, from the highly-finished models that surround it. The parthenon is degraded in the front by a mean house, in which resides the disdar, or governor of the fortress, and the south-east angle exhibits a wretched mosque. The town is inhabited chiefly by Turks and Christians, of the Greek church. It is the see of an archbishop, under whom five archons and a number of secretaries are appointed to the management of its ecclesiastical concerns.

ATHENS, a flourishing post town of New York, on the west bank of the Hudson, opposite Hudson city. The situation of this place is pleasant, and very eligible for trade. It contains a Lutheran church, three school-houses, and a market-house, an extensive rope-walk, a large distillery, a pottery of stoneware, and other smaller manufactories. Population 1000. Twenty-eight miles south of Albany.

ATHERINA, in ichthyology, a genus of fishes of the order of abdominales. The characters of this genus are these:—the upper jaw plain; the rays of the branchiostege membrane are six; and the side belt or line shines like silver. The species are two, viz.

1. A. hepsetus, the smelt, with about twelve rays in the fin next the anus. It is found in the Mediterranean, and is also very common in the sea near Southampton. The highest season is from March to the beginning of June; in which month it spawns. It is also found on other coasts of our island.

2. A. menidea, has twenty-four rays in the fin next the anus. This is a very pellucid fish, with many black points interspersed; it has many teeth in the lips, but none in the tongue or jaws. It is found in the fresh waters of Carolina, and spawns in April.

ATHERINOIDES, a species of clupea, distinguished by a silvery lateral line. In the dorsal fin are twelve rays; fourteen in the pectoral fins; eight in the ventral fins; thirty-two in the anal fin; and eighteen in the tail. It is a native of Surinam.

ATHERIX, in entomology, a genus of the order diptera, and family rhagionidæ. Its generic characters are antennæ moniliform; the third joint not ringed, but terminated by a seta, the palpi erect. The only known species is maculatus, found in the woods of Great Britain.

ATHEROMA, a kind of tumor, occurring chiefly in the neck and arm-holes, and containing matter resembling *αθηρα*, or pap, intermixed with hard and stony particles. These tumors are easily cured by incision.

ATHESIS, in ancient geography, a river of Cisalpine Gaul, which, rising in the Rhætian Alps, runs southward, and washes Tridentum and Verona, which last it divides; and afterwards bends its course eastward, and falls into the Adriatic, between Fossa Claudia and Philistina. It separated the country of the Euganei from that of the Veneti. It is now called the Adige.

ATHIAS (Joseph), a learned Jewish printer, in the seventeenth century. He resided at Amsterdam, where, in 1667, he published a Hebrew bible, which is held in great estimation. He likewise printed the bible in Spanish, German, and English. The States presented him with a gold medal and chain, as a mark of the value they put upon his labors.

ATHIRST. On thirst. See THIRST.

With scanty measure then supply their food;
And, when *athirst*, restrain 'em from the flood.
Dryden.

Unnumbered suppliants crowd Preferment's gate,
Athirst for wealth, and burning to be great;
Delusive Fortune hears the incessant call,
They mount, they shine, evaporate, and fall.
Johnson.

ATHLETÆ, Αφλητης, Gr. from *αθλος*, a combat; in antiquity, persons of strength and agility, disciplined to perform in the public games. Under Athletæ were comprehended wrestlers, boxers, runners, leapers, throwers of the disk, and those practised in other exercises, exhibited in the Olympic and Pythian games, &c. for the conquerors in which there were established prizes. To obtain a firm, bulky, weighty body, by force of which they frequently overpowered their antagonist, they fed altogether on dry, solid, and viscous meats. In the earlier times their chief food was dry figs and cheese, which was called arida saginatio, *ξηρα τροφη*. Oribasius first brought this in disuse, and substituted flesh instead of these. They had a peculiar bread, called *κολητια*: they exercised, eat, and drank, without ceasing; were not allowed to leave off eating when satiated, but were obliged to cram on till they could hold no more; by which means they at length acquired a degree of voracity, which to us seems incredible, and a strength proportional. Pausanias relates of Milo, the Crotonian, that he carried a bull on his back a considerable way, then knocked him down with a blow of his fist, and, lastly, devoured him at a meal!

ATH'LETE, ATH'LETICK. Αθλητης, a wrestler in the agonistic exercises of the Greeks; from *αθλος*, labor. One whose physical powers enable him to labor, struggle, contend.

And health itself, if it be *athletic*, may by its very excess become dangerous. *Bp. J. Taylor.*

Science distinguishes a man of honour, from one of those *athletic* brutes, whom undeservedly we call heroes. *Dryden.*

Was he [the wise man] in adversity; he equally returned thanks to the director of this spectacle of

human life, for having opposed to him a vigorous *athlete*, over whom, though the contest was likely to be more violent, the victory was more glorious and equally certain. *Smith's Moral Sentiments.*

ATHLON, Gr. Ἆθλον, in antiquity, the prize adjudged to the victor, in the athletic exercises, at the public games.

ATHLONE, a town of Ireland, pleasantly situated on both sides of the Shannon; the one half lying in the county of Westmeath, and the other in that of Roscommon. These divisions of the town are united by a well built bridge, in the middle of which stands a monument, on which there are some badly executed figures and inscriptions, celebrating the success of Queen Elizabeth of England, and relating how the rebels in her reign were executed, quartered, and their skulls, &c. stuck upon poles, about the country, and at Dublin castle; and every thing brought into a state of the greatest prosperity. Athlone, though so advantageously situated for trade, still remains a poor, ruinous, neglected, dirty place. The castle was founded by king John, on some land belonging to St. Peter's abbey, for which he granted a compensation. It is built on a high raised round hill, resembling one of the Danish forts. It had formerly two convents, and was strongly fortified. In 1691 part of the English army under General Ginckle, although the Irish were strongly entrenched on the opposite shore, forded the river, stormed and took possession of the town, not losing more than fifty men in the attack; which is esteemed as bold an enterprise as any recorded in history. General Ginckle obtained the title of Earl of Athlone, as a reward for his services. There are generally two troops of horse, and four companies of foot quartered at Athlone. Athlone is fifty-nine miles west from Dublin. Long. 7° 41′ W., lat. 53° 22′ N.

ATHLOTHETA, in antiquity, an officer appointed to superintend the public games, and adjudge the prizes. The athlotheta was otherwise called æsymneta, brabeuta, &c.

ATHNACH, the name of one of the principal of the Hebrew accents, which serves not only to regulate the voice, but to distinguish the members of a sentence, whence its name athnach, i. e. respiration. On this account it is called king and pause, and answers to our colon, and sometimes to a note of interrogation. It is marked under a letter thus (ʌ).

ATHOL, or Atholl, the most northern district of Perthshire in Scotland, extending in length forty-three miles, and in breadth thirty. The country is very rough and mountainous, and contains part of the ancient Caledonian forest: but these mountains are interspersed with fruitful valleys. It has several villages, but no town of any consideration. The most noted place is Blair castle, which belongs to the duke of Atholl, who derives his title from this district. In the neighbourhood is the pass of Killicranky, rendered memorable by the battle fought there, in the beginning of king William's reign, between general M'Kay, and the Highlanders adhering to king James.

ATHOS, a mountain of Chalcidia in Macedonia, celebrated in ancient and modern times. The ancients entertained extravagant notions concerning its height; and it was a received opinion, that the summit of mount Athos was above the middle region of the air, and that it never rained upon it. Its modern name of Monte Santo (Holy Mount) it has got from the number of Greek monasteries that are built on it. They amount to nearly thirty, are protected by fortifications from the incursions of the corsairs, and are inhabited by about 6000 monks, who lead a life of monotony and indolence. The air is remarkably pure, and many of the inhabitants reach a great age. About half-way up the hill lies a small town, called Kareis, which is also fortified, and is the seat of the Turkish aga. A market is held here every Saturday, from which females are excluded. They pay an annual tribute for protection to the Turkish government. The manuscripts in their libraries have been recently examined, and some account of them will be found in Dr. Clarke's Travels. According to the accounts of modern travellers, this mountain advances into the Archipelago, on the south of the Gulf of Contessa, and is joined to the continent by an isthmus about half a league in breadth. It is about thirty miles in circumference, and two in perpendicular height. It abounds with many different kinds of plants and trees, particularly the pine and fir. In the valleys grows a plant called elegia, whose branches serve to make pens for writing. Through this mountain, or rather through the isthmus behind it, Xerxes, king of Persia, is said to have cut a passage for his fleet when about to invade Greece. In this work he spent three whole years, and employed in it all the forces on board the fleet. He is also said, before the work was begun, to have written the following ridiculous letter to the mountain: 'Athos, thou proud and aspiring mountain, that liftest up thy head to the very skies, I advise thee not to be so audacious, as to put rocks and stones, that cannot be cut, in the way of my workmen! If thou makest that opposition, I will cut thee entirely down, and throw thee headlong into the sea!' The directors of this enterprise are said to have been Bubaris, the son of Megabyzus, and Artacheus, the son of Arbeus, both Persians; but, as no traces of such a great work remain, the truth of the whole relation has been questioned. Dinocrates, a sculptor, who followed the march of Alexander, offered to convert mount Athos into a statue of that king, holding a town in his right hand, and in his left a basin large enough to contain all the waters that flowed from it; but the proposal was deemed too extravagant to be accepted. This venerable mountain constitutes one entire chain, extending seven miles in length, and three in breadth, and is situated about seventy miles east of Salonichi, the ancient Thessalonica.

ATHULIA, in entomology, a very small species of papilio, found in the northern parts of Russia. This is the papilio phœbe of Esper, and belongs to the family satyri in the Fabrician system.

ATHWART, *prep.* & *adj.* From to thwart. Across; in a transverse direction; figuratively, wrong, in a vexatious manner.

There let the classic page thy fancy lead
Through rural scenes, such as the Mantuan swain
Paints in the matchless harmony of song;
Or catch thyself the landscape gliding swift
Athwart Imagination's vivid eye. *Thomson.*

Shook sudden from the bosom of the sky,
A thousand shapes, or glide *athwart* the dusk,
Or stalk majestic on. *Id.*

With thee, my bark, I'll swiftly go,
Athwart the foaming brine;
Nor care what land thou bear'st me to,
So not again to mine.
Lord Byron's Childe Harold.

ATHWART, in navigation, is synonymous with across the line of the course. It is also used in other senses, such as,

ATHWART-HAUSE, expresses the situation of a ship, when she is driven by wind or tide, or any other accident across the fore part of another

ATHWART-SHIPS, reaching across ships from one side to the other.

ATHWART THE FORE FOOT, denotes the flight of a cannon ball from one ship across the course of another, to intercept the latter, and oblige her to shorten sail, that the former may come near enough to examine her.

ATHY, a town of Ireland, in the county of Kildare, near the borders of Queen's county. It is situated on the river Barrow, on which boats pass by Carlow to Waterford. It is ten miles south of Kildare, and thirty-two south-west of Dublin; from which a branch of the grand canal extends, and boats pass between them daily, through the whole extent. It is governed by a sovereign, two bailiffs, and a recorder; and is, alternately with Naas, the assizes town.

ATHYMIA, *αθυμια*, despondency; dejection of the spirits.

ATIBAR, the name by which the inhabitants of Gago in Africa call gold-dust; from which word Europeans, and especially the French, have composed the word tiber, which also signifies gold-dust among those who trade in that commodity.

ATILIA, in ancient records, signifies utensils, implements for country business.

ATILT. On tilt. Lifted up in the attitude of attack; also, any thing with one end lifted up, as a barrel.

In the city Tours
Thou ran'st *atilt*, in honour of my love;
And stol'st away the ladies' hearts from France.
Shakspeare.

To run *atilt* at men, and wield
Their naked tools in open field. *Hudibras.*

Such a man is always *atilt*; his favours come hardly from him. *Spectator.*

ATINGA GUACU-MUCU. See CORNUTUS CUCULUS.

ATINGA, in ichthyology, a species of diodon, of an oblong form, beset with rounded spines. It is called by Marcgrave, guamajucu antinga; and in England is known by the name of porcupine fish.

This species lives in the American seas, and about the Cape of Good Hope. Its food consists of crabs and other shell-fish. The length rather exceeds twelve inches; the body is compressed at the sides, and bluish. This creature has the power of dilating its body, and erecting its spines at pleasure. It is usually taken in nets, but will also take bait, which is commonly the tail of a crab, fastened on the hook.

ATINIA LEX, a law passed by the tribune Atinius, which gave a tribune of the people the privileges of a senator, and the right of sitting in the senate.

ATIZOE, in the writings of ancient naturalists, a stone used in the consecration and anointing of kings. Pliny describes it to have been of a lenticular figure, and of the size of three fingers, of a bright silvery color, and of a pleasant smell. He says it was found in India, and in some other places. Agricola is of opinion it was a kind of bitumen.

ATKINS (James), bishop of Galloway, the son of Henry Atkins, sheriff of Orkney, was born at Kirkwall, educated at the university of Edinburgh, where he took the degree of A. M. and finished his studies at Oxford, under the celebrated Dr. Prideaux, about A. D. 1638. Being appointed chaplain to the Marquis of Hamilton, he was soon after presented to the church of Birsay in Orkney, where he was much esteemed. In 1650, being moderator of the presbytery, he was appointed to draw up a declaration of loyalty, in their names, and present it to the Marquis of Montrose; for which he and the whole presbytery were deposed by the general assembly, and the doctor was excommunicated for corresponding with the Marquis. The council soon after passed an act for bringing him to trial, but being privately warned by his friend, Sir Archibald Primrose, the clerk of council, he fled to Holland, where he remained till 1653, when he returned to Edinburgh, and resided in quiet obscurity till the restoration. He then accompanied Dr. Sydserf to London, and obtained the rectory of Winfrith. In 1677 he was elected bishop of Moray, and in 1680 translated to the see of Galloway, which he governed seven years, and died much respected in 1687, aged seventy-four.

ATKINS (Sir Robert), lord chief baron of the exchequer, was born in 1621, and educated at the university of Oxford, from whence he removed to the inns of court, and became eminent in the law. He was made knight of the bath, at the coronation of king Charles II. In 1662 he was appointed one of the judges of Common Pleas; in which station he continued till 1679, when foreseeing the troubles that soon after ensued, he resigned, and retired into the country. In 1689 he was made by king William lord chief baron of the exchequer; and about the same time filled the office of speaker to the house of lords. He distinguished himself by an unshaken zeal for the laws and liberties of his country; and wrote several pieces which have been collected into one volume 8vo. under the title of Parliamentary and Political Tracts.

ATLANTEAN. Possessing the strength of Atlas.

Where are the pillars, that support the skies?
What more than *Atlantean* shoulder props
Th' incumbent load? What magic, what strange art,
In fluid air these pond'rous orbs sustain?
Young's Night Thoughts, ix.

ATLANTES. See Atlas.

ATLANTIC. The Atlantic Ocean is that great basin of waters that separates Europe and Africa on the east, from America on the west, and stretches from the arctic ocean on the north to a line which joins Cape Horn and the Cape of Good Hope on the south. It is divided from the north sea, on the north-east, by the Straits of Dover, Great Britain, the isles of Faroe and Iceland. The Mediterranean with its gulfs, the Gulf of Mexico, and Hudson's and Baffin's Bay, are consequently branches of it. That part of the Atlantic, however, between Brasil and Africa, and from the nearest approximation of these countries to the southern limits, is sometimes called the Ethiopic Ocean. It has been conjectured that the vast bed of the Atlantic was formed at the time of the deluge, by the great southern ocean below the equator, rushing on the northern hemisphere. This the shape of the opposite shores has been supposed to justify, which have the exact appearance of having been formed by the action of water, the great protuberances of the one corresponding to the indentations of the other. One of the most remarkable features of the Atlantic is its currents. It partakes of the general current which flows from the poles towards the equator, and which arises from the increased evaporation in the equatorial regions, and the augmented temperature of the waters, rendering them specifically lighter than those of the ocean in higher latitudes, as well as from the increased supplies produced by the melting of the polar ice. The existence and effects of this great current are fully proved by the enormous masses of polar ice, which they convey into the more temperate regions of the ocean, and which sometimes float as low as 40° of latitude.

The coast of America, and the numerous islands with which it is flanked, intercept the general current of the Atlantic, and create what navigators call the gulf stream. This enters the Gulf of Mexico, sweeps round the shores of that Gulf, and issues with accelerated velocity towards the north, by the channel between the southern point of Florida and the Bahama Islands. It then rolls along the shore of North America, diminishing in velocity, but increasing in breadth, till it reaches the great bank of Newfoundland. There it suddenly turns towards the east and south-east, and flows with still decreasing velocity towards the shores of Europe, the Azores, and the coasts of Africa. Navigators readily distinguish it by the high temperature of its waters, their great saltness, their indigo color, and the shoals of sea-weed that cover their surface. The celebrated Dr. Franklin first caused it to be laid down on a map, and in his various voyages from America to Europe, made numerous observations on its peculiarities. Humboldt, in May 1804, observed its velocity in the twenty-seventh degree of latitude, and found it about eighty miles in twenty-four hours, though the north wind blew very strongly at the time of the observation. When it issues from the Gulf of Florida, its velocity resembles that of a torrent, and is sometimes five miles an hour, but at others not more than three. Between the nearest point of Florida and the bank of Bahama, the breadth is only fifteen leagues, but a few degrees further north it is seventeen; in the parallel of Charlestown, it is from forty to fifty leagues in breadth; and in latitude 40° 25′, this is increased to nearly eighty leagues. The waters of the torrid zone, being thus forcibly impelled towards the north-east, preserve their high temperature to such a degree, that in latitude 40° and 41° it has been found to be 22·5° of the centigrade thermometer, or 72° of Fahrenheit; while out of the current the temperature of the water was only 63·5°. In the parallel of New York, the temperature of the gulf stream is equal to that of the sea in latitude 80°. When the stream reaches the western Azore island, where the breadth is about 160 leagues, the waters still preserve a part of the impulsion they received in the Gulf of Florida, nearly 1000 leagues distant. Thence it proceeds to the Canaries and the coast of Africa, and in the latitude of Cape Blanco, where the waters flow towards the south-west, they mingle with the current of the tropics, and recommence their tour from east to west.

Thus it appears that the waters of the Atlantic, between the eleventh and forty-third degrees, are constantly drawn by currents into a kind of whirlpool; and if a body floating on these waters be supposed to return precisely to the place from which it commenced its motion, M. Humboldt has calculated, from the known velocity of the current, that it would require two years and ten months to complete its circuit of 3800 leagues. 'A boat,' he observes, 'which may be supposed to receive no impulsion from the winds, would require thirteen months from the Canary islands, to reach the coast of Caraccas, ten months to make the tour of the Gulf of Mexico and reach Tortoise shoals, opposite the port of Havannah, while forty or fifty days might be sufficient to carry it from the Straits of Florida to the banks of Newfoundland. Estimating the velocity of the water at seven or eight miles in twenty-four hours, in their progress from this bank to the coast of Africa, it would require ten or eleven months for this last distance. Such are the effects of this slow but regular motion, which agitates the waters of the ocean.' A branch of this current evidently reaches the western shores of Europe, as the productions of the tropical regions of America are frequently thrown on the coasts of the Hebrides, Scotland, and Norway.

M. Humboldt endeavoured to ascertain the comparative height of the waters of this ocean along its shores. In reference to the Gulf of Mexico, and the opposite side of the isthmus on the shores of the Pacific, he found the surface of the former to be six or seven metres higher than that of the latter. The depth of the Atlantic is also extremely various; in many places being wholly beyond the power of man to fathom. Captain Scoresby, in the Greenland sea, in 1817, plumbed to the greatest known depth which a line has reached, i. e. 7200 feet. Many parts of the Atlantic, however, are thought to be three times this depth.

The saltness and specific gravity of the Atlantic differ in various parts; and gradually diminish from the equator to the poles. In the neighbourhood of the British isles, the salt has been

stated at $\frac{1}{28}$rd of the weight of the water; and Dr. Thompson, in his Chemistry, observes, that as far as experience has gone, the proportion of saline contents does not appear to differ much, whatever may be the latitude in which the water is examined. Captain Phipps, in north latitude 80°, and sixty fathoms under ice, found the saline contents of sea-water to be 0·0354; in latitude 74°, he found them to be 0·036; in latitude 60°, 0·034. Pages found sea-water, taken up in north latitude 45° and 39°, to contain 0·04 of saline contents; and Baumè, obtained by analysis from water taken up by Pages, in north latitude 34° and 14°, exactly the same proportion of saline matter. In southern latitudes, Pages found the following proportions of saline contents, viz.:

Latitude	Sal. Matter	Latitude	Sal. Mat.
49° 50′	0·0416	25° 54′	0·04
46 0	0·045	20 00	0·039
40 30	0·040	1 16	0·035

The specific gravity of the water is greatest where the saline ingredients contained are the most abundant; as it is the mixture of these with the pure water that increases its weight.

The water of the Atlantic ocean is warmest between 5° 45′ and 6° 15′ of north latitude, where it has been found by actual observation to vary from about 82° 5′ to 84° 5′ of Fahrenheit's thermometer. There, too, the temperature of the sea is generally a few degrees higher than that of the air which reposes upon it. Nearer the poles the influence of the seasons on the surface of the ocean, becomes more sensible; but, as the temperature of the water changes more slowly than that of the atmosphere, the means do not, in point of time, exactly correspond. Where not disturbed by local causes, the mean temperature of the surface water is not very different from that of the incumbent atmosphere. It is about 81° at the equator, 70° at 26° of north latitude, and 60° at 45°. The temperature diminishes as the depth increases. M. Peron found that at the depth of 380 fathoms, the temperature was only 45° 5′, though at the surface it was 80°. Currents greatly modify the temperature by transmitting the water of one region to another, as well as in some degree by the agitation they create. While the current which sets into the Gulf of Mexico is much warmer than the adjacent parts of the sea, it is not so warm as that which flows through Magellan's Straits into the Pacific.

Humboldt made various experiments on the surface of the Atlantic Ocean, between the 9th of June and the 15th of July, 1799, from which the following are selected:

North lat.	West lon.	Temperature of the Atlantic ocean, at its surface.	
° ′	° ′	° ′	
39 10	16 18	59 00	Fahrenheit
34 30	16 55	61 34	
32 16	17 4	63 86	
30 36	16 54	65 48	
29 18	16 40	66 74	
26 51	19 13	68 00	
20 8	28 51	70 16	
17 57	33 14	72 32	
14 57	44 40	74 66	
13 51	49 43	76 46	
10 46	60 54	78 44	

He farther remarks that, 'from Corunna to the mouth of the Tagus, the water of the sea varied but little in its temperature; but from the thirty-ninth degree of latitude to the tenth, the increment was very sensible and very constant, though not always uniform. From the parallel of Cape Montego to that of Salvage, the progress of the thermometer was almost as rapid as from 20° 18′ to 10° 46′; but it slackened extremely at the limits of the torrid zone, from 29° 18′ to 20° 8′. This inequality is, no doubt, caused by the currents that mingle the waters of different latitudes, and which, as we approach the Canary Islands, or the coast of Guiana, set either to the south-east, or north-west. M. de Churuca, who crossed the equator in his voyage to the straits of Magellan, in the twenty-fifth degree of west longitude (in October), found the maximum of the temperature of the Atlantic ocean, at the surface in 6° of north latitude.' *Humboldt's Personal Narrative.*

Masses of ice, and icebergs, having their origin in high latitudes, are carried towards the south and south-west by the general current, which flows from the poles towards the equator; and they have a great influence in lowering the summer temperature both of the ocean and atmosphere. Fragments of these icebergs occasionally reach the fortieth degree of latitude. At 50° the rivers, lakes, and bays, of the sea, sometimes freeze; and at 60°, the gulfs and interior seas sometimes freeze in their whole extent.

ATLANTIDES, in astronomy, the Pleiades, or seven stars, so called, as being supposed to have been the daughters of Atlas, who, the poets fabled, were translated into heaven.

ATLANTIS, Atalantis, or Atlantica; an island mentioned by Plato and some others of the ancients, concerning the real existence of which there have been many disputes. Homer, Horace, and the other poets, make two Atlanticas, calling them Hesperides and Elysian Fields, making them the habitations of the blessed. The most distinct account of this island we have in Plato's Timæus, of which Mr. Chambers gives the following abridgement. 'The Atlantis was a large island in the western ocean, situated opposite to the straits of Gades. Out of this island there was an easy passage into some others, which lay near a large continent, exceeding in bigness all Europe and Asia. Neptune settled in this island, from whose son, Atlas, its name was derived, and divided it among his ten sons. To the youngest fell the extremity of the island, called Gadir; which, in the language of the country, signifies fertile, or abundant in sheep. The descendants of Neptune reigned here from father to son for a great number of generations in the order of primogeniture, during the space of 9000 years. They also possessed several other islands; and, passing into Europe and Africa, subdued all Lybia as far as Egypt, and all Europe to Asia Minor. At length the island sunk under water: and for a long time after-

wards the sea thereabouts was full of rocks and shelves.' Many of the moderns also are of opinion, that the existence of the Atlantis is not to be looked upon as entirely fabulous. Some take it to have been America; and from thence, as well as from a passage in Seneca's Medea, and some other obscure hints, they imagine that the new world was not unknown to the ancients. But allowing this to be the case, the abovementioned continent, which was said to lie beyond Atlantis, would seem rather to have been the continent of America than that of Atlantis itself. The learned Rudbeck, professor in the University of Upsal, in a work entitled Atlantica sive Manheim, endeavours to prove that Sweden and Norway are the Atlantis of the ancients; but this its situation will not allow us to believe. By Kircher it is supposed to have been an island extending from the Canaries to the Azores; that it was swallowed up by the ocean, as Plato asserts; and that these small islands are the shattered remains of it.

Atlas, one of the Titans, son of Japetus and Clymene, one of the Oceanides. He was brother to Epimetheus, Prometheus, and Menœtius. He married Pleione, daughter of Oceanus, or Hesperis, according to others, by whom he had seven daughters, called Atlantides. He was king of Mauritania, and master of a thousand flocks; as also of beautiful gardens, abounding in fruit, which he entrusted to the care of a dragon. Perseus, after the conquest of the Gorgons, passed by the palace of Atlas, and demanded hospitality. The king, who had been informed by Themis that he should be dethroned by one of the descendants of Jupiter, refused to receive him. Perseus showed him Medusa's head, and Atlas was instantly changed into a large mountain. This mountain which runs across the deserts of Africa, east and west, is so high that the ancients have imagined that the heavens rested on its top, and that Atlas supported the world on his shoulders. Hyginus says, that Atlas assisted the giants in their wars against the gods, for which Jupiter compelled him to bear the heavens on his shoulders.

Atlas, in anatomy, the name of the first vertebra of the neck, which supports the head. It has no spinal apophyses; because the motions of the head do not turn on this vertebra, but on the second.

Atlas, in architecture, is a name given to those figures, or half figures of men, sometimes used instead of columns, or pilasters, to support any member of architecture, as a balcony, or the like. These Atlantes are also called Telamones.

Atlas, in commerce, a silk satin, manufactured in the East Indies. There are some plain, some striped, some flowered, the flowers of which are either gold, or silk. There are atlasses of all colors; but most of them false, especially the red and the crimson. The manufacture of them is admirable; the gold and silk being worked together after such a manner as no workman in Europe can imitate; yet they are far from having that fine lustre which the French know how to give to their silk stuffs. In the Chinese manufactures of this sort, they gild paper on one side with leaf-gold; then cut it in long slips, and weave it into their silks; which makes them, with little cost, look very rich and fine. The same long slips are twisted about silk threads, so artificially, as to look finer than gold thread, though it be of no great value.

Atlas, in geography, a lofty chain of mountains which separate Barbary from the great desert of Zaara. They are said to have derived their name from Atlas, king of Mauritania. The mountains which form the eastern boundary of the empire of Morocco are by far the loftiest part of this chain; their height rises to upwards of 13,000 feet; and their summits are covered with perpetual snow. As the chain stretches through eastern Barbary, it diminishes considerably in height, spreading into various branches. These Dr. Shaw represents as generally consisting of a number of little hills of the perpendicular height of 400 or 500 yards, covered with groves, and ranges of fruit and forest trees rising behind each other. From this chain numerous rivers descend and fertilise the plains of Morocco in their way to the ocean; while others flow southwards into the desert, till they are lost in its sands. The geology of the Atlas is very little known; but its basis is probably granite, while in its lower parts calcareous rocks appear to prevail. Considering its extent and magnitude, the Atlas does not produce any very copious supply of minerals Lead and silver are obtained in considerable quantity, and farther to the south are mines of gold and silver, which the sovereigns of Morocco have prevented from being worked, from jealousy of the natives. Antimony, for which there exists an extensive demand as a cosmetic, is drawn very copiously from these mountains. The most valuable kind is found near Tafilelt, and is called El Kahol Filelly. Opposite to Terodant, sulphur is found in immense quantities Iron is also produced though not very abundantly. The ancients, whose knowledge of geography was very confined, conceived these mountains to be the pillars of the world, and that their summit upheld the heaven: we subjoin the following quotation.

> Nec patitur nomen proferri longius Atlas,
> Atlas subducto tacturus vertice cælum;
> Sidera nubiferum fulcit caput, ætheriasque
> Erigit æternum compages ardua cervix;
> Canet barba gelu, frontemque immanibus umbris
> Pinea silva premit, vastant cava tempora venti
> Nimbosoque ruunt spumantia flumina rictu.
>
> *Sil.* l. 1.

ATLITA, in entomology, a species of papilio, indented, brown, fulvous beneath, with undulated glaucous streaks, and five blind-eye shaped spots. Native of the East Indies.

ATMOSPHERE, } From the Gr. ατμος,
Atmospher'ical. } vapor, and σφαιρα, sphere. The body of air and vapor that surrounds the earth.

> We did not mention the weight of the incumbent *atmospherical* cylinder, as a part of the weight resisted.
>
> *Boyle.*

> The exteriour part of this our habitable world is the air, or *atmosphere*; a light, thin, fluid, or springy body, that encompasses the solid earth on all sides.
>
> *Locke.*

Immense the whole excited *atmosphere*
Impetuous rushes o'er the sounding world.
Thomson.

Then no more
The expansive *atmosphere* is cramped with cold,
But full of life, the vivifying soul
Lifts the light clouds sublime, and spreads them thin,
Fleecy, and white, o'er all-surrounding heaven. *Id.*

Atmosphere; this word is used to signify the whole of the fluid mass consisting of air, aqueous and other vapors, electric fluids, &c. which surrounds the earth to a considerable height, and partakes of both its diurnal motion on its axis, and its annual motion round the sun. Its composition was, until within these few years, very little known. That it is a very heterogeneous mass, might readily be concluded, upon considering that it is the common receptacle of all the effluvia, exhalations, and particles, raised from innumerable bodies upon the earth: hence it has been compared to a vast chemical vessel in which the matter of all kinds of bodies is continually floating, and thus exposed to the action of the sun; from whence proceed innumerable operations, sublimations, separations, compositions, digestions, fermentations, putrefactions, &c. The discoveries of modern chemistry have, however, shown us its essential constituents and their proportions, a subject which we have treated at considerable length under the word Air.

It only remains therefore for us to add a few supplementary observations to that paper; and these will principally respect the figure of the atmosphere and its supposed limits. If the earth had no diurnal rotation upon its axis, then according to the laws of gravity the atmosphere would be of an uniform height, enclosing the earth, which in this case would be perfectly spherical. But as the earth and the atmosphere revolve about an axis, the different parts of both have a centrifugal force, by which their gravity is diminished towards the equator, the figure of the atmosphere becomes an oblate spheroid; the parts that correspond to the equator being farther removed from the centre than the parts that correspond to the poles, and the ratio of the poles to the equatorial diameter, being as two to three. Besides, the figure of the atmosphere must on another account represent a flattened spheroid; namely, because the sun strikes more directly the air between the tropics, than the air in the polar regions, and hence the mass of atmospheric air adjoining the poles being less heated, cannot expand so much, nor reach so high as the air in the neighbourhood of the equator. And yet higher columns about the equatorial regions may not be heavier than those at the poles; seeing that the same force which contributes to elevate the air, diminishes its gravity and pressure on the surface of the earth.

Mr. Kirwan has given in the Transactions of the Royal Irish Academy an ingenious dissertation on the figure, height, weight, &c. of the atmosphere, where he observes, that in the natural state of the atmosphere, its weight must be equal over all the earth, and since the density of the air at the earth's surface increases from the equator to the poles, its height must diminish from the poles to the equator, and from this it follows that although the equatorial air be less dense to a certain height than the polar, yet at some greater heights it must be more dense. Hence it is inferred that in the higher regions of the atmosphere, the denser equatorial air not being supported by the collateral extra-tropical columns, gradually flows over and rolls down to the north and south.

La Place, in that part of his Systeme du Monde which treats of the atmosphere of the planets, ingeniously observes, that in all the changes to which the atmosphere is subject, the sum of the products of the particles of the revolving body and its atmosphere, multiplied respectively by the areas they describe round the common centre of gravity (the radii being projected on the plane of the equator), remains the same in equal times. Supposing therefore by any cause whatever, the atmosphere should be contracted, or that part thereof should become condensed on the surface of the body, the rotatory motion of the latter and its atmosphere would be accelerated; for the radii vectores of the areas described by the particles of the original atmosphere becoming smaller, the sum of the products of all the particles by their corresponding areas cannot remain the same unless their velocities be augmented.

The limits of the atmosphere have been a frequent subject of philosophical inquiry, especially since it was discovered by the Torricellian tube that air is endued with weight and pressure. Indeed, if the air possessed no elastic power, but were everywhere of the same density, from the surface of the earth to the extreme limit of the atmosphere, like water, which is equally dense at all depths, the whole height of the atmosphere might be ascertained without difficulty. It has been well established, that the weight of a column of air reaching to the top of the atmosphere, is equal to the weight of the mercury contained in the barometer, and counterbalancing it; and the proportion of weight likewise being known between equal bulks of air and mercury, it will be easy to find the height of such a column, and consequently that of the atmosphere itself. For a column of air one inch high being to an equal column of mercury as 1 to 11364·6; it is evident that 11364·6 such columns of air, that is a column 947 feet high, would be equal in weight to one inch of mercury: and consequently the 30 inches of mercury sustained in the barometer, require a column of air 28,410 feet high; whence the height of the atmosphere would only be 28,410 feet, or little more than five English miles and a quarter high. But the air by its elastic property expands and contracts; and it being found by repeated experiments that the spaces it takes up when compressed by different weights, are reciprocally proportional to those weights themselves; or, that the air takes up the less space the more it is pressed; it follows that the air in the upper regions of the atmosphere, where the weight is so much less, must be much rarer than near the surface of the earth; and consequently that the height of the atmosphere must be much greater than is above assigned.

On this subject it has been further and well remarked, that if the earth were perfectly no-

tionless, the elasticity of the atmosphere uniformly as the compressing force, and matter infinitely divisible, we could have no other than an atmosphere indefinitely extended; but the diurnal motion at a certain height brings the centrifugal force equal to that of gravity, and beyond this limit no atmosphere can exist. Its particles by the operation of this force would here become projected into space; and the process would continue until the entire atmosphere was dissipated. Dr. Wollaston, in an ingenious paper in Part I. of the Philosophical Transactions for 1822, observes, that if we admit that air has been rarefied so as to sustain only $\frac{1}{100}$ of an inch of barometrical pressure, and that this measure has afforded a true estimate of its rarity, we should infer from the law of elasticity observed within certain limits, that the atmosphere extends at least to the height of forty miles with properties yet unimpaired by extreme rarefaction. Beyond this limit we are left to conjecture, founded on the supposed divisibility of matter; and if this be infinite, so also must be the extent of the atmosphere, except so far as regards the centrifugal force to which we have already referred; for if the density be throughout as the compressing force, then must a stratum of given thickness at every height be compressed by a superincumbent atmosphere, bearing a constant ratio to its own weight, whatever be its distance from the earth. But if air consists of any ultimate particles no longer divisible, then must expansion of the medium composed of them cease at that distance where the force of gravity downwards upon a single particle is equal to the resistance arising from the repulsive force of the medium.

On the supposition of limited divisibility, the atmosphere which surrounds us must be conceived to be a medium of finite extent, and may be peculiar to our planet, since its properties would afford no ground to presume that similar matter exists in any other planet. But if we adopt the supposition of unlimited expansion, we must conceive the same kind of matter to pervade all space, where it would not be in equilibrio unless the sun, the moon, and all the planets possessed their respective shares of it condensed around them, in degrees depending upon their respective force of attraction, unless in those instances where the tendency to accumulate may be counteracted by the interference of other kinds of matter, or of other powers of which we have no experience, and concerning which we cannot be supposed to reason correctly.

Now on this supposition, since we know the mass and diameter of the principal bodies in our system, we should know also the density of their atmospheres at their respective surfaces; and also at what distance from the surface of each, the density would be the same as at the surface of the earth; at which height a sensible degree of refraction that is more than a degree, ought to be produced on a ray of light passing through it. For example, if the mass of the sun be considered as 330,000 times that of the earth, the distance at which his force is equal to that of terrestrial gravity at our surface, will be $\sqrt{330,000}$, or about 575 times the earth's radius; and if his radius be 111·5 times that of the earth then the distance will be $\frac{575}{111{\cdot}5} = 5{\cdot}15$ times the sun's radius. Now the mean apparent semi-diameter of the sun being 15′49″, we have 15′ 49″ × 5·15 = 1° 21′ 29″, for the distance from the sun's centre, where the refractive power of his atmosphere is equal to that at the earth's surface; that is where it would produce a deviation of a degree to a ray passing through it at that distance. We are able, as Dr. Wollaston has shown, to observe Venus within this distance of the sun; and since in this observation we find no effect produced by refraction, the observed and computed places agreeing to a fraction of a minute, we have a right to infer that at the distance we have computed, the density of the sun's atmosphere is not such as it would be if each body in the system possessed an atmosphere proportional to its own attractive power; but this must be the case if the elastic matter of the atmosphere were infinitely divisible, hence then again we may conclude that matter is not infinitely divisible, and consequently that the atmosphere of this earth is of a finite and limited height, and may be peculiar to it. But some doubt will hang over this deduction in respect to the sun, on account of the probable heat near his surface, which may produce a rarefaction far exceeding any thing that we can form an idea of; but this will not be the case if we select Jupiter as the body for observation.

Since the mass of Jupiter is full 309 times that of the earth, the distance at which his attraction is equal to gravity must be about $\sqrt{309}$, or 17·6 times the earth's radius; and since his diameter is nearly 11 times greater than that of the earth, we shall have $\frac{17{\cdot}6}{11} = 1{\cdot}6$ times his own radius; for the distance from his centre at which an atmosphere equal to our own should occasion a refraction exceeding one degree to the fourth satellite. This distance would subtend an angle of about 3° 37′, so that an increase of density to 3¼ times our common atmosphere, would be more than sufficient to render the fourth satellite visible to us when behind the centre of the planet; and consequently to make it appear on both or all sides at the same time. Hence, whatever doubt may remain on the deduction made from observations on Venus seen through the solar atmosphere, in consequence of the possible effects of heat which cannot be appreciated, it is evident that no error from this source can be apprehended in regard to Jupiter. This planet therefore does not possess an atmosphere proportional to his mass, as he would do if the matter composing it were infinitely divisible, and therefore, as we have seen, common to the whole solar system. Hence then we have a right to conclude, that matter is not infinitely divisible, and that each planet possesses an atmosphere peculiar to itself of limited height, composed of ultimate atoms of definite magnitude, no longer divisible by the repulsion of their parts.

We may, in conclusion, observe that to the refractive and attractive power of the atmosphere we owe all the blessings and phenomena of twilight. By the former the rays of light are

bent from the right-lined direction, by the latter objects are enlightened more uniformly on all sides. The want of this power would occasion a strange alteration in the appearance of things; shadows would be totally dark, and the enlightened sides of objects overpoweringly bright; so that probably we could see no more of them than their bright halves; and for a view of the other halves must turn them round, or, if immovable, wait until the sun could come round upon them. Such a pellucid unreflective atmosphere might be very commodious for astronomical observations on the course of the sun and planets among the fixed stars visible by day as well as by night; but such a sudden transition from darkness to light, and from light to darkness immediately upon the rising and setting of the sun, without any twilight, and even upon turning to or from the sun at noon day, would be very inconvenient and offensive to our eyes. See *Keil's Astron. Lect.* 20, &c. See also LIGHT and REFRACTION in our alphabet.

ATOLLENS OCULI, in anatomy, a name given by Albinus to one of his quatuor recti musculi oculi. This is the muscle called by Molinett, and others, the superbus, and by Cowper, the elevator oculi.

ATOM, ATOM'ICAL, A'TOMIST, ATOM'LIKE, ATOM'OLOGY, AT'OMY. From *a*, privative, and *τεμνω*, to cut. Something so small as not to be cut into smaller particles; so simple as not to be capable of reduction to simpler elements.

It is as easy to count *atoms*, as to resolve the propositions of a lover. *Shakspeare. As You Like it.*

Drawn with a team of little *atomies*,
Athwart men's noses, as they lie asleep.
Shakspeare.

Vitrified and pellucid bodies are clearer in their continuities, than in powders and *atomical* divisions. *Brown's Vulgar Errours.*

These *atomic* theists utterly evacuate that grand argument for a God, taken from the phenomenon of the artificial frame of things, which has been so much insisted upon in all ages. *Cudworth's Intellectual System.*

Innumerable minute bodies are called *atoms*; because, by reason of their perfect solidity, they were really indivisible. *Ray.*

The *atomists* (who define motion to be a passage from one place to another) what do they more, than put one synonymous word for another? *Locke.*

See plastick nature, working to this end!
The single *atoms*, each to other tend;
Attract, attracted to, the next in place,
Form'd and impell'd its neighbour to embrace.
Pope.

Now can judicious *atomists* conceive,
Chance to the sun could his just impulse give?
Blackmore.

Vacuum is another principal doctrine of the *atomical* philosophy. *Bentley's Sermons.*

ATOM; atomus, Lat *ατομος*; such a small particle as cannot be physically divided; and these are the first rudiments, or the component parts of all bodies.

ATOMICAL PHILOSOPHY. See ATTRACTION.

ATONE', *v.* & *ad.* ATONE'MENT, ATONE'MAKER. To be *at one*. Implying a state of former estrangement, and expressing present reconciliation. To satisfy the claims of justice and equity by making reparation and expiation; to enjoy the renewed friendship and regard of the injured party.

Paul sayth, 1 Timothy ii. One God, one Mediator (that is to say, aduocate, intercessor, or an *atone-maker*), betweene God and man; the man Christ Jesus which gaue himselfe a raunsom for all men.
The Whole Workes of W. Tyndall, fol. 158. c. i.

He seeks, to make *atonement*,
Between the duke of Glo'ster and your brothers.
Shakspeare.

He and Aufidius can no more *atone*,
Than violentest contrariety. *Id. Coriolanus.*

From a mean stock, the pious Decii came;
Yet such their virtues, that their loss alone,
For Rome and all our legions, did *atone*.
Dryden. Juvenal.

The good intention of a man of weight and worth, or a real friend, seldom *atones* for the uneasiness produced by his grave representations *Locke.*

Let thy sublime meridian course
For Mary's setting rays *atone*:
Our lustre, with redoubled force,
Must now proceed from thee alone. *Prior.*

His virgin sword Ægysthus' veins imbrued;
The murd'rer fell, and blood *aton'd* for blood.
Pope.

Soon should yon boasters cease their haughty strife;
Or each *atone* his guilty love, with life. *Id.*

And the Levites were purified; and Aaron made an *atonement* for them, to cleanse them. *Numbers.*

Surely, it is not a sufficient *atonement* for the writers; that they profess loyalty to the government, and sprinkle some arguments in favour of the dissenters; and, under the shelter of popular politicks and religion, undermine the foundations of all piety and virtue. *Swift.*

If any contention arose, he knew none fitter to be their judge, to *atone*, and make up their quarrels, but himself. *Drummond.*

ATONEMENT. The word כפר, translated atonement in the sacred writings, some writers say, signifies covering; and thus it would seem to imply that man can only be at-one with an infinitely just God, when that for which his progenitor was banished God's presence, and that which he has himself acquired by following a similar course, is covered. See EXPIATION and SACRIFICE.

ATONICS, in grammar, words unaccented.

ATONY; from *a*, and *τονος*, tone; in medicine, a defect of tone or tension, or a laxity or debility of the solids of the body.

ATOOI, one of the Sandwich islands.—Towards the north-west and north-east the face of the country is ragged and broken; but to the southward it is more even. The hills rise from the sea side with a gentle acclivity, and, at a little distance back, are covered with wood. Its produce is the same with that of the other islands of this cluster; but its plantations are managed much better than those of all the neighbouring islands. In the low grounds, contiguous to the bay wherein our navigators anchored, they were regularly divided by deep ditches; the fences were formed with a neatness approaching to elegance, and the roads through them were finished in such a manner as would have reflected credit even on an European engineer. The anchoring place, which our vessel occupied, is on the south-west side of the island, about two

leagues from the west end, before a village named Wymoa. As far as was sounded, the bank was free from rocks, except to the eastward of the village, where there projects a shoal, on which are some rocks and breakers. This road is somewhat exposed to the trade wind, notwithstanding which defect, it is far from being a bad station, and greatly superior to those which necessity continually obliges ships to use, in countries where the winds are not only more variable, but more boisterous; as at Madeira, Teneriffe, the Azores, &c. The landing too is not so difficult as at most of those places; and, unless in very bad weather, is always practicable. The water in the neighbourhood is excellent, and may be conveyed with ease to the boats. But no wood can be cut at any convenient distance, unless the islanders could be prevailed upon to part with the few etooa trees (cordia sebestina) that grow about their villages, or a species called dooe dooe, which grows farther up the country. Atooi is about 300 miles in circumference. Long. 200° 20′ E., lat. 21° 57′ N.

The natives of Atooi are of the middle size, and in general stoutly made. They are neither remarkable for a beautiful shape nor for striking features. Their visage, particularly that of the women, is sometimes round, but others have it long; nor can it justly be said that they are distinguished as a nation by any general cast of countenance. Their complexion is nearly of a nut brown; but some individuals are of a darker hue. They are far from being ugly, and have, to all appearance, few natural deformities of any kind. Their skin is not very soft nor shining; but their eyes and teeth are, for the most part, pretty good. Their hair in general is straight; and though its natural color is usually black, they stain it, as at the Friendly and other Islands. They are active, vigorous, and most expert swimmers, leaving their canoes upon the most frivolous occasion, diving under them and swimming to others, though at a considerable distance. Women with infants at the breast, when the surf was so high as to prevent their landing in the canoes, frequently leapt overboard, and swam to the shore without endangering their little ones. They appeared to be of a frank cheerful disposition, and are equally free from the fickle levity which characterises the inhabitants of Otaheite, and the sedate cast which is observable among many of those of Tongataboo. They seem to cultivate a sociable intercourse with each other; and except the propensity to thieving, which is as it were innate in most of the people in those seas, they appeared extremely friendly. It was pleasing to observe with what affection the women managed their infants, and with what alacrity the men contributed their assistance in such a tender office; thus distinguishing themselves from those savages who consider a wife and child as things rather necessary than desirable, or worthy of their regard and esteem. From the numbers that were seen assembled at every village, in coasting along, it was conjectured that the inhabitants of this island are pretty numerous. Including the straggling houses, it was computed there might perhaps be, in the whole island, sixty such villages as that near which our ships anchored; and, allowing five persons to each house, there would be in every village 500, or 30,000 in all upon the island. This is by no means exaggerated: for there were sometimes 3000 people at least collected upon the beach, when it could not be supposed that above a tenth part of the natives were present.

The ground, from the wooded part to the sea, is covered with an excellent kind of grass, about two feet in height, which sometimes grows in tufts, and appeared capable of being converted into abundant crops of fine hay. But on this extensive spot not even a shrub grows naturally. Besides taro, the sweet potatoe, and other similar vegetables used by our crews as refreshments, among which were at least five or six varieties of plantains, the island produces bread fruit; which, however, seems to be scarce. There are also a few cocoa palms; some yams; the kappe of the Friendly Islands, or Virginian arum; the etooa tree, and odoriferous gardenia or cape jasmine. Our people also met with several trees of the dooe dooe, that bear the oily nuts, which are stuck upon a kind of skewer, and made use of as candles. There is a species of sida, or Indian mallow; also the morinda citrifolia, which is here called *none;* a species of convolvulus; the ava or intoxicating pepper, besides great quantities of gourds. These last grow to a very large size, and are of a remarkable variety of shapes, which are perhaps the effect of art. The scarlet birds, which were brought for sale, were never met with alive; except one small one, about the size of a canary bird, of a deep crimson color. A large owl, two brown hawks or kites, and a wild duck, were also seen. Other birds were mentioned by the natives; among which were the otoo, or bluish heron, and the torata, a sort of whimbrel. It is probable that this species of birds are numerous, if we may judge by the quantity of fine yellow, green, and small, velvet like, blackish feathers, used upon the cloaks and other ornaments worn by these people. Fish, and other productions of the sea, were to appearance not various. The only tame or domestic animals found here were hogs, dogs, and fowls, which were all of the same kind that had been met with at the islands of the South Pacific. There were also small lizards, and some rats.

ATOP. On top, at the top. See Top.

Atop whereof, but far more rich, appear'd
The work, as of a kingly palace-gate.
Paradise Lost.

What is extracted by water from coffee is the oil, which often swims *atop* of the decoction.
Arbuthnot on Aliment.

ATRA BILIS, black bile, or melancholy According to the ancients it hath a two-fold origin: first, from the grosser parts of the blood, and this they called the melancholy humor. Second, from yellow bile being highly concocted. Dr. Percival, in his Essays Medical and Experimental, suggests that it is the gall, rendered acrid by a stagnation in the gall-bladder, and rendered viscid by the absorption of all its fluid parts. Bile in this state discharged into the duodenum, occasions universal disturbance and disorder until it is evacuated; it occasions violent vomiting or purging, or both; and, previous

to this, the pulse is quick, the head aches, a delirium comes on, a hiccough, intense thirst, inward heat, and a fetid breath. Some describe this kind of bile as being acid, harsh, corroding, and, when poured on the ground, bubbling up, and raising the earth, after the manner of a ferment. Dr. Percival says, that by the use of the infus. senæ limoniat., warmed with the tinct. columb., he had checked the vomitings occasioned by this matter.

ATRACTOCERUS, in entomology, a genus of the order coleoptera, and family malacodermi. Its generic characters are: antennæ simple, and fusiform; short elytra, and sub-quadrate thorax. There is but one species, A. necydaloides, the necydalis brevicornis of Linnæus.

ATRACTYLIS, distaff thistle, a genus of the polygamia æqualis order, and syngenesia class of plants. Its generic characters are: CAL. many leaved: COR. compound radiate: STAM. five filaments; cylindric anther: PIST. germen very short; style filiform; stigma bifid: PER. none: SEEDS turbinate. The species are: 1. A. cancellata, or small cnicus, an annual plant, rising about eight or nine inches high, with a slender stem, garnished with hoary leaves, having spines on their edges. 2. A gummifera, or prickly gum-bearing cnicus, known among physicians by the name of carline thistle, is a perennial plant. It sends out many narrow leaves, which are armed with spines on their edges, and lie close on the ground; between them the flower is situated, without a stalk, and having many florets enclosed in a prickly empalement. Its roots were formerly used as a warm diaphoretic and alexipharmic; but never came much into use in Britain, and the present practice has entirely rejected them. 3. A humilis, or purple prickly cnicus, a perennial plant, rising about a foot high, with indented leaves, having small spines on their edges. All these plants are natives of the warm parts of Europe, as Spain, Sicily, and the Archipelago islands.

ATRA DIES, in antiquity. The word literally imports a black day; a denomination taken from the color, which is the emblem of death and mourning. Whence the Thracians had a custom of marking all their happy days with white stones or calculi, and their unhappy days with black ones; which they cast, at the close of each day, into an urn. At the person's death the stones were taken out; and, from a comparison of the numbers of each complexion, a judgment was made of the felicity or infelicity of his course of life. The dies atræ, or atri, were denominated nefasti, and posteri. Such, in particular, was the day when the tribunes were defeated by the Gauls at the river Allia, and lost the city; also that whereon the battle of Cannæ was fought; and several others marked in the Roman calendar as atræ or unfortunate.

ATRAGENE, in botany, a genus of plants, class polyandria, order polygnia. Its generic characters are: CAL. four-leaved perianth: COR. twelve petals: STAM. filaments very many; oblong antheræ: PIST. germs many; villose style; stigma simple: PER. none: SEEDS very many. The species are shrubs, as atragene japonica, atragene alpina, &c.

ATRAMENT'AL, } Lat. *atramentum*, ink.
ATRAMENT'OUS. } Having the blackening property of ink.

If we enquire, in what part of vitriol this *atramental* and denigrating condition lodgeth; it will seem, especially to lie in the more fixed tult thereof.
Brown's Vulgar Errours.

I am not satisfied, that those black and *atramentous* spots, which seem to represent them, are ocular.
Brown.

ATRAPHAXIS, in botany, a genus of the digynia order and class of plants; natural order, twelfth, holoraceæ. CAL. two leaves; the petals are two, and sinuated; stigmas capitate; and there is but one seed. There are two species, both natives of warm countries

ATRATUS (Hugh), was born at Evesham, in Worcestershire. He made such proficiency in the knowledge of the sciences, particularly mathematics, medicine, and philosophy, that he was called the phœnix of the age. Pope Martin II. gave him a cardinal's hat in 1281. He died of the plague in 1287. He wrote Genealogiis Humanis Problemata; and also Canones Medicinalis.

ATRAX, in fabulous history, a son of Ætolus, or, as others say, of the river Peneus. He was king of Thessaly, and built a town which he named Atrax or Atracia; which became so famous that the word Atracius was commonly given to an inhabitant of Thessaly. He was the father of that Hippodamia who married Pirithous, and who must not be confounded with the wife of Pelops, who was so named.

ATREBATES, the ancient inhabitants of Gallia Belgica, who possessed that part of Gaul now called Artois. A colony of them settled in Britain. They are mentioned by Cæsar among the nations which composed the Belgic confederacy against him; and the quota of troops which they engaged to furnish on that occasion was 15,000.

ATREBATES, or ATREBATII, a people of Britain, seated next to the Bibroci, in part of Berkshire, and Oxfordshire; and one of those Belgic colonies which came out of Gaul into Britain, and there retained their ancient name. Comius of Arras was a king or chieftain among the Atrebates in Gaul, in Cæsar's time: and he seems to have possessed some authority over our Atrebatii in Britain; for he was sent by Cæsar to persuade them to submission. This circumstance makes it probable that this colony of the Atrebatii had not been settled in Britain very long before that time. The Atrebatii were among those British tribes which submitted to Cæsar; nor do we hear of any remarkable resistance they made against the Romans, at their next invasion, under Claudius.

ATRESIA; from *α*, and *τραω*, whence *τιτραω*, to perforate; in medicine, imperforation, or the state of those persons who want some natural aperture.

ATRETI, those persons of either sex in whom the anus, or genitals, are imperforate, whether naturally, or occasioned by some accident or disease; as the growth of some fleshy excrescence, or membrane, which stops the orifice

ATREUS, in fabulous history, the supposed

king of Mycenæ and Argos, about A.A.C. 1228. He was the son of Pelops by Hippodamia, and brother to Pittheus, Troezen, Thyestes, and Chrysippus. The latter being an illegitimate son, and a favorite with his father, Hippodamia resolved to remove him; and for this purpose she endeavoured to persuade Thyestes and Atreus to murder him; but her arguments proving vain, she executed it herself. Pelops was grieved at his son's death; and the brothers being suspected, they fled from his presence. Atreus retired to the court of his nephew, Eurystheus king of Argos, on whose death he succeeded to that throne. Some writers say he married Ærope, his predecessor's daughter, by whom he had Plisthenes, Menelaus, and Agamemnon; but, according to others, Ærope was the wife of Plisthenes, by whom she had Agamemnon and Menelaus, who are the reputed sons of Atreus, because he took care of their education, and brought them up as his own. Thyestes had followed his brother to Argos, where he lived with him, and debauched his wife, by whom he had some children. When Atreus discovered this incestuous commerce, he banished his brother from his court; but, determined to have more ample revenge for the violence offered to his bed, he soon after recalled him, and invited him to a sumptuous feast. Thyestes was served up with the flesh of the children he had by his sister-in-law the queen; and, when the entertainment was over, to convince him of what he had feasted upon, the arms and the heads of the murdered children were shown him. This action appeared so horrid that the sun is said to have withdrawn his light. Thyestes fled directly to the court of Thesprotus, and thence to Sicyon, where he ravished his own daughter Pelopea, in a grove sacred to Minerva, not knowing who she was; though some say he committed this incest intentionally, to revenge himself on his brother Atreus, as the oracle had promised him satisfaction for the cruelties he had suffered, only by the hand of a son by himself with his own daughter. Pelopea brought forth a son whom she named Ægisthus, and soon after she married Atreus, who had lost his wife. Atreus adopted Ægisthus, and sent him to murder Thyestes, who had been made prisoner. Thyestes knew his son, and made himself known to him; when, instead of murdering his father, he espoused his cause, and avenged his wrongs by returning to Atreus and assassinating him.

ATRI, or ATRIA, a town of Italy, in Abruzzo, in Naples. It lies 26 miles west of Aquila, and was the birth place of the emperor Adrian. It is the see of a bishop, and is seated on a craggy mountain, five miles from the Adriatic sea. Long. 15° 20′ E., lat. 42° 40′ N.

ATRICAPILLA, in ornithology, a little bird, commonly known by the name of the black cap, and called, by some authors, ficedala, sycalis, or melanchoryphus, and by the Italians, caponegro.

ATRICES, or ATTRICES, in medicine, small tubercles about the anus, which sometimes disappear, and then return again, at least in their early state. They are ranked in the number of condylomata, or fici. Some authors also give the denomination atrici to a kind of latent wounds in the extremity of the rectum, which however do not perforate it.

ATRICILLA, in ichthyology, a species of the larus.

ATRIDES, a patronymic of Agamemnon and Menelaus, the sons of Atreus.

ATRIENSES, in antiquity, a kind of servants in the great families at Rome, who had the care of the atria, and the things lodged therein. See ATRIUM. They were also called atriarii, though some make a distinction between atrienses and atriarii; suggesting, that the latter were an inferior order of servants, employed in the more servile offices of the atrium, as to attend at the door, sweep the area, &c. and to assist the former. The atrienses are represented as servants who had command over the rest, and acted as agents for their master, in selling his goods, &c. To their care were committed the images of the master's ancestors, &c. which were placed round the atrium; and which they carried in procession at funerals, &c. In the country houses, the atrienses had the care of the other furniture and utensils, particularly those of metal, which they were to keep from rust. Other things they were to hang in the sun, to keep them dry, &c. They were clothed in a short white linen habit, to distinguish them, and prevent their loitering from home.

ATRIP, in nautical language, is applied either to the anchor or sails. The anchor is atrip, when it is drawn out of the ground, in a perpendicular direction, either by the cable or buoy rope. The top sails are atrip, when they are hoisted up to the mast head, or to their utmost extent.

ATRIPLEX, ORACH, or ARRACH, a genus of the monœcia order and polygamia class of plants; natural order twelfth, holoraceæ. CAL. the hermaphrodite flower, five-leaved; COR. none; STAM. five; STY. bifid; SEED, one, depressed. There are fourteen species, of which the following are the most remarkable: 1. A. halimus, the broad leafed orach, formerly cultivated in gardens as a shrub, by some formed into hedges, and constantly sheared to keep them thick. It may be propagated by cuttings, and planted in any of the summer months, in a shady border; where they will soon take root, and be fit against the following Michaelmas to transplant. 2. A. hortensis, the garden orach, was formerly cultivated in gardens, and used as a substitute for spinage. There are three or four varieties of this plant, whose only difference is their color; one is a deep green, another a dark purple, and a third has green leaves and purple borders. They are all annual, and must be propagated by seeds. These are to be sown at Michaelmas, soon after they are ripe. This species is an article of the materia medica; a decoction of the leaves is recommended in costiveness where the patient is of a hot bilious disposition. 3. A. petulacoides, the shrubby sea orach, grows wild by the sea side, in many places of Britain. It is a low under shrub, seldom rising above two feet and a half, or at most three feet high; but becomes very bushy.

ATRIUM, in antiquity, the large room or court at the first entrance into the house, in which the Romans used to sup, and in which they kept

the statues and images of their ancestors. In ecclesiastical antiquity it signified an open place or court before a church, making part of what was called the narthex, or antetemple. The atrium in the ancient churches was a large area or square plat of ground, surrounded with a portico or cloister, situtate between the porch or vestibule of the church and the body of the church. Some have mistakenly confounded the atrium with the porch or vestibule, from which it was distinct; others with the narthex, of which it was only a part. The atrium was the mansion of those who were not suffered to enter farther into the church. More particularly, it was the place where the first class of penitents stood to beg the prayers of the faithful, as they went into the church. Atrium, in the canon law, the cemetery or church yard. In this sense, we find a law, prohibiting buildings to be raised in atrio ecclesiæ, except for the clergy; which the glossary explains thus, id est in cæmeterio, which includes the space of forty paces around a large church, or thirty round a small church or chapel.

ATRO'CIOUS, ATRO'CIOUSLY, ATRO'CIOUSNESS, ATRO'CITY. } Lat. *atrox*. Perhaps *a*, intentive, and *trux*, fierce, savage, rough in manners. Used in the sense of inflexible, terrible, dreadful, enormously wicked.

An advocate is necessary; and therefore audience ought not to be denied him in defending causes, unless it be an *atrocious* offence. *Ayliffe's Parergon.*

I never recal it to mind, without a deep astonishment of the very horror and *atrocity* of the fact in a Christian court. *Wotton.*

They desired justice might be done upon offenders, as the *atrocity* of their crimes deserved. *Clarendon.*

Bad as Herod was, the petition of Salome at first shocked him. 'The king was sorry.' He thought of John's character, the *atrociousness* of the murder, and the opinion which the world would entertain of the murderer.

Horne on the Life and Death of St. John the Baptist.

ATROPA, DEADLY NIGHT-SHADE: A genus of the monogynia order, and pentandria class of plants; natural order twenty-fifth, Luridæ. The corolla is campanulated; the stamina are distant; the berry is globular, and consisting of two cells. There are eight species; the most common are: 1. A. belladonna, growing wild in many parts of Britain. It hath a perennial root, which sends out strong herbaceous stalks of a purplish color. These rise to the height of four or five feet, garnished with entire oblong leaves, which, towards autumn, change to a purplish color. The flowers are large, and come out singly between the leaves, upon long foot stalks; bell-shaped, and of a dusky color on the outside, but purplish within. After the flower is past, the germen turns to a red berry, a little flatted at the top, about the size of a cherry. It is first green; but when ripe, turns to a shining black, sits close upon the empalement, and contains a purple juice of a nauseous sweet taste, and full of small kidney-shaped seeds. This species being remarkable for its poisonous qualities, is very seldom admitted into gardens, nor should it ever be cultivated or allowed to grow in those places to which children have access. The symptoms produced by this poison are vertigo, delirium, great thirst, painful deglutition, and retching, followed by furor, stridor dentium, and convulsions; the eye-lids are drawn down, the uvea dilated and immovable, the face becomes red and tumid, and spasms affect the mouth and jaw; the sensibility and irritability of the body suffer such great diminution, that large and repeated doses of the strongest emetics produce no sensible effect; the pulse is small, hard, quick; and subsultus tendinum, risus sardonius, and coma, close the fatal scene. Vinegar liberally drank has been found most efficacious in obviating the effects of this poison. The leaves of the belladonna were first used externally to discuss scirrhous and cancerous tumors, and as an application to ill-conditioned ulcers; and their good effects in this way at length induced physicians to employ them internally for the same disorders; and we find a considerable number of well-authenticated facts, which prove them to have been of important service. 2. A frutescens, is a native of Spain, and rises with a shrubby stem to the height of six or eight feet; dividing into many branches, garnished with round leaves, in shape like those of the storax tree: these are placed alternately on the branches. The flowers come out between the leaves, on short foot stalks, shaped like those of the former, but much less; of a dirty yellowish color, with a few brown stripes; but these are never succeeded by berries in Britain. 3. A herbacea, is a native of Campeachy, and has an herbaceous stalk and a perennial root, which puts forth several channelled herbaceous stalks, rising about two feet. Towards the top they divide into two or three small branches, garnished with oval leaves, four inches long, and three broad, having several prominent transverse ribs on their under side. The flowers come out from between the leaves; on short foot stalks; they are white, and shaped like those of the common sort, but smaller. It flowers in July and August, but seldom ripens its fruit in Britain. 4. A mandragora, the mandrake, has been distinguished into the male and female. The male mandrake has a very large, long, and thick root: it is largest at the top or head, and from thence, gradually grows smaller. Sometimes it is single and undivided to the bottom; but more frequently it is divided into two or more parts. From this root arise a number of very long leaves, broadest in the middle, narrow towards the base, and obtusely pointed at the end: they are a foot or more in length, and about five inches in breadth; of a dusky and disagreeable green color, and of a very feted smell. The female mandrake perfectly resembles the other in its growth; but the leaves are longer and narrower, and of a darker color, as are also the seeds and roots. It grows naturally in Spain, Portugal, Italy, and the Levant. These three last species are propagated by seeds, and placed in stoves. This plant has been recommended as a cure for barrenness. Its fresh root is a violent purge, the dose being from ten to twenty grains in substance, and from half a dram to a dram in infusion. It has been found to do service in hysteric complaints; but must be used with great caution, otherwise it will bring on convulsions, and other mischievous symptoms. It has also a narcotic quality. At present only the

fresh leaves are sometimes used in anodyne and emollient cataplasms and fomentations. It used to be an ingredient in one of the old officinal unguents; but both that and the plant itself are now rejected from our pharmacopœias. It still, however, retains a place in the foreign ones, and may perhaps be considered as deserving farther attention. No modern botanist will admit the human figure ordinarily ascribed to its roots, especially since the discovery of the artifice of charlatans in fashioning it, to surprise the credulity of the people. Moses informs us, (Gen. xxx. 14.) that Reuben, being in the field, happened to find mandrakes, which he brought home to his mother Leah. Rachel wished for them, and obtained them from Leah, upon a certain condition. The term דוּדָאִים dudaim, here made use of by Moses, is one of those words of which the Jews at this day do not understand the true signification. Some translate it violets, others lilies or jessamine. Junius calls it agreeable flowers; Codurquus makes it truffle, or mushroom; but Calmet will have it to be the citron.

AT'ROPHY. From *a*, privative, and τρεφω, I nourish. Want of nourishment; a disorder, in which what is taken at the mouth, cannot contribute to the support of the body.

Pining *atrophy*,
Marasmus, and wide-wasting pestilence. *Milton.*

The mouths of the lacteals may be shut up by a viscid mucus; in which case the chyle passeth by stool, and the person falleth into an *atrophy*. *Arbuthnot on Aliments.*

The shaking head, and the contracted limb;
And lingering *atrophy*, and hoary age. *Jago.*

ATROPHY. See MEDICINE, Index.

ATROPOS, in heathen mythology, the name of the third of the Parcæ, or Fates. Her business was to cut the thread of life.

ATTACH', } Fr. *attacher*, to fasten by
ATTACH'MENT. } means of some tie. To bind both literally and metaphorically.

Eftzoons the guards, which on his state did wait,
Attach'd that traitor false, and bound him strait. *Spenser.*

The Tower was chosen; that if Clifford should accuse great ones, they might (without suspicion or noise) be presently *attached*. *Bacon's Henry* VII.

Bohemia greets you:
Desires you to *attach* his son, who has
His dignity and duty both cast off. *Shakspeare.*

Attach thee firmly to the virtuous deeds
And offices of life: to life itself,
With all its vain and transient joys, sit loose. *Mallet.*

It must be confessed a happy *attachment*, which can reconcile the Laplander to his freezing snows, and the African to his scorching sun. *Cumberland.*

A sensible mind cannot do violence even to a local *attachment* without much pain. *Cowper's Letters.*

ATTACHIAMENTA BONORUM, in ancient law books, denotes a distress taken upon the goods or chattels of any person sued for a personal estate, or debt, by the legal attachiators, as a security to answer the action.

ATTACHMENT, in the law of England, implies the taking or apprehending a person by virtue of a writ or precept. It is distinguished from an arrest, by proceeding out of a higher court, by precept or writ; whereas, the latter proceeds out of an inferior court, by precept only An arrest lies only on the body of a man; whereas, an attachment lies often on the goods only, and sometimes on the body and goods.

ATTACHMENT BY WRIT differs from distress, in not extending to lands, as the latter does; nor does a distress touch the body as an attachment does.

ATTACHMENT, FOREIGN, is an attachment of money or goods found within a liberty or city, to satisfy some creditor within such liberty or city. By the custom of London, and several other places, a man can attach money or goods in the hands of a stranger, to satisfy himself. If a plaint be exhibited in the mayor's or the sheriff's court (the proceeding in the former being the most advantageous) against A, and the process be returned nihil, and thereupon the plaintiff suggests that another person within London is indebted to A, the debtor shall be warned (whence he is called the garnishee), and if he does not deny himself to be indebted to A, the debt shall be attached in his hands. But nothing is attachable, but for a certain and due debt; though by the custom of London, money may be attached before due, as a debt, but not levied before due. Sid. 327. 1 Nels. Abr. 282, 283.

ATTACHMENT OF PRIVILEGE is, by virtue of a man's privilege, to call another to that court whereto he himself belongs, and in respect whereof he is privileged to answer some action.

ATTACHMENT OF THE FOREST, is one of the four courts held in the king's forests. The lowest court is called the court of attachment, or woodmote court; the second is the court of regard, or survey of dogs; the third is that of swein-mote, the highest, the Justice in eyre's seat. This attachment is by three means: by goods and chattels, by body, pledges, and mainprize; or by body only. This court is held every forty days throughout the year; whence it is also denominated forty days' court.

ATTACHMENT OUT OF THE CHANCERY, is obtained upon an affidavit made, that the defendant was served with a subpœna, and made no appearance; or it issues upon not performing some order or decree. Upon the return of this attachment by the sheriff, quod non est inventus in balliva sua, another attachment, with a proclamation, issues; and if he still refuses to appear, a commission of rebellion.

ATTACK', *v.* & *n.* Fr. *attaquer*; from *attacher*, to come into close contact with hostile intentions; to be the aggressor, to offend.

Satan who that day
Prodigious power had shown, and met in arms
No equal ranging through the dire *attack*
Of fighting Seraphim, confus'd at length
Saw where the sword of Michael smote. *Milton.*

An indiscreet man is more hurtful than an ill-natured one, for as the latter will only *attack* his enemies and those he wishes ill to; the other injures indifferently both friends and foes. *Addison.*

Hector opposes; and continues the *attack*; in which Sarpedon makes the first breach in the wall. *Pope. Iliad.*

ATTACOTTI, an ancient people of Britain, mentioned by Ammianus Marcellinus, and St.

Jerome, as well as in the Notitia Imperii. They are represented as allies of the Scots and Picts, and were, therefore, probably their neighbours; though their precise situation has not been determined by antiquaries.

ATTAGEN, *αττα γας*, or *αττα γεν*; in ornithology, the same with our gor-cock, moor-cock, or red game.

ATTAIN', ATTAIN'ABLE, ATTAIN'ABLENESS, ATTAIN'MENT. } Lat. *attineo*; from *ad*, and *teneo*, to hold. To reach as the object of pursuit or effort, to realize one's desire, to procure.

Crowns and diadems, the most splendid terrene *attains*, are akin to that; which, to-day is in the field, and to-morrow is cut down. *Glanville's Scepsis.*

He wilfully neglects, the obtaining unspeakable good; which, he is persuaded is certain and *attainable*. *Tillotson.*

Persons become often enamoured of outward beauty, without any particular knowledge of its possessor, or its *attainableness* by them. *Cheyne.*

So pleas'd at first the tow'ring Alps we try,
Mount o'er the vales, and seem to tread the sky;
The eternal snows appear already past,
And the first clouds and mountains seem the last:
But those *attained*, we tremble to survey
The growing labour of the lengthened way,
The increasing prospect tires our wond'ring eyes,
Hills peep o'er hills, and Alps on Alps arise.
Pope's Essay on Criticism.

Among nations, as well as individuals, the powers of imagination *attain* some degree of vigour before the intellectual faculties are much exercised in speculative or abstract disquisition. *Robertson.*

ATTAINDER, in law, is the immediate consequence, when sentence of death, the highest judgment in our laws, is pronounced. For when it is now clear beyond all dispute, that the criminal is no longer fit to live upon the earth, but is to be exterminated as a monster and a bane to human society, the law sets a note of infamy upon him, puts him out of its protection, and takes no farther care of him than barely to see him executed. He is then called attaint, attinctus, stained, or blackened. He is no longer of any credit or reputation; he cannot be a witness in any court; neither is he capable of performing the functions of another man: for, by an anticipation of his punishment, he is already dead in law. This is after judgment; for there is a great difference between a man convicted and attainted; though they are frequently confounded together. After conviction only, a man is liable to none of these disabilities; for there is still in contemplation of law a possibility of his innocence. Something may be offered in arrest of judgment: the indictment may be erroneous, which will render his guilt uncertain, and thereupon the conviction may be quashed: he may obtain a pardon, or be allowed the benefit of clergy; both which suppose some latent sparks of merit, which plead in extenuation of his fault. But, when judgment is pronounced, both law and fact conspire to prove him completely guilty; and there is not the remotest possibility left of any thing to be said in his favor. Upon judgment, therefore, of death, the attainder of a criminal commences: or upon such circumstances as are equivalent to judgment of outlawry on a capital crime, pronounced for absconding from justices which tacitly confesses the guilt: and therefore, upon judgment, either of outlawry, or of death, for treason or felony, a man is said to be attainted. A person attainted of high treason, forfeits all his lands, tenements, and hereditaments; his blood is corrupted, and he and his posterity rendered base. See CORRUPTION, FORFEITURE, &c. Attainders may be reversed or falsified, (i. e. proved to be false) by writ of error, or by plea. If by writ of error, it must be by the king's leave, &c. and, when by plea, it may be by denying the treason, pleading a pardon by act of parliament, &c. Persons may be attainted by act of parliament. Acts of attainder of criminals have been passed in several reigns, on the discovery of plots and rebellions, from the reign of king Charles II. when an act was made for the attainder of several persons, guilty of the murder of king Charles I. Among acts of this nature, that for attainting Sir John Fenwick, for conspiring against king William, is the most remarkable; it being made to attaint and convict him of high treason, on the oath of one witness, just after a law had been enacted, 'That no person should be tried or attainted of high treason, where corruption of blood is incurred, but by the oath of two lawful witnesses, unless the party confess, stand mute, &c.' Stat. 7 and 8 W. III. cap. 3. But he was indicted of treason, on the oaths of two witnesses, though but only one could be produced against him on his trial. By the VIIth Ann. chap. 21, all corruption of blood, and the forfeiture for ever of a traitor's estate of inheritance, were to have ceased on the death of the then Pretender; but the legislative policy or panic of the reign of George II. caused a further extension of these vindictive principles of law, to the time of the death of the Pretender's sons. And, by an act of the 39th of the late king, the provisions of the statutes of Anne and of George II. for the future abrogation of these hard consequences of attainder, were repealed, and the law stood in its original severity. But by an act, introduced by Sir Samuel Romilly, in the 54th year of his late Majesty's reign, corruption of blood, and forfeiture beyond the term of the offender's own life were abolished, except in cases of treason, petty treason, and murder; thus, in part, realising the hope expressed by Mr. Justice Blackstone (Comm. b. iv. c. 29), 'That as every other oppressive mark of feudal tenure is happily worn away, corruption of blood, with all its connected consequences, not only of present escheat, but of future incapacities of inheritance, even to the twentieth generation, may in process of time be abolished by act of Parliament.'

ATTAINT', *v. n.* & *adj.* ATTAIN'DER, ATTAIN'TURE, ATTAIN'MENT. } Old Fr. *attaindre*; from *tangere*, to touch, says Minshen, because he who is attainted is touched, caught, or taken: or, from *tingere*, to stain, which is more probable. To stain, to impute charge, or accuse.

Were it not an endless trouble, that no traitor or felon should be *attainted*, but a parliament must be called? *Spenser.*

I must offend, before I be *attainted*. *Shakspeare.*

His warlike shield
Was all of diamond, perfect, pure, and clean;
For, so exceeding shone his glistering ray,
That Phœbus' golden face it did *attaint*;
As, when a cloud his beams doth overlay.
Spenser's Faerie Queene.

My tender youth was never yet *attaint*
With any passion of inflaming love. *Shakesp.*

So smooth he daub'd his vice with shew of virtue;
He liv'd, from all *attainder* of suspect. *Id.*

Hume's knavery will be the duchess's wreck,
And her *attainture* will be Humphrey's fall. *Id.*

The ends in calling a parliament were chiefly, to have the *attainders* of all his party reversed; and, on the other side, to attaint by parliament his enemies. *Bacon.*

How would the sons of Troy in arms renown'd,
And Troy's proud dames whose garments sweep the ground,
Attaint the lustre of their former name,
Should Hector basely quit the field of fame?
Pope. Homer.

ATTAINT, in the English law, is a writ that lies after judgment against a jury of twelve men, that have given false verdict in any court of record, in an action real and personal, where the debt or damages amount to above forty shillings, stat. 5 and 34 Ed. III. c. 7. It is called attaint, because the party that obtains it endeavours thereby to stain or taint the credit of the jury with perjury, by whose verdict he is grieved. The jury who are to try this false verdict must be twenty-four, and are called the grand jury; for the law wills not that the oath of one jury of twelve men should be attainted or set aside by an equal number, nor by less indeed than double the former. And he that brings the attaint can give no other evidence to the grand jury, than what was originally given to the petit. For, as their verdict is now trying, and the question is, whether or no they did right upon the evidence that appeared to them, the law adjudged it the highest absurdity to produce any subsequent proof upon such trial, and to condemn the prior jurisdiction for not believing evidence which they never knew. But those against whom it is brought, are allowed, in the affirmance of the first verdict, to produce new matter: because the petit jury may have formed their verdict upon evidence of their own knowledge, which never appeared in court; and, because very terrible was the judgment which the common law inflicted upon them, if the grand jury found their verdict a false one. The judgment was, 1. That they should lose their liberam legem, and become for ever infamous. 2. That they should forfeit all their goods and chattels. 3. That their lands and tenements should be seized to the king. 4. That their wives and children should be thrown out of doors. 5. That their houses should be rased. 6. That their trees should be rooted up. 7. That their meadows should be ploughed. 8. That their bodies should be cast into jail. 9. That the party should be restored to all that he lost by reason of the unjust verdict. But, as the severity of this punishment had its usual effect, in preventing the law from being executed, therefore, by the statute 11 Hen. VII. c. 24, revived by 23 Hen. VIII. c. 3, and made perpetual by 13 Eliz. c. 25, it is allowed to be brought after the death of the party, and a more moderate punishment was inflicted upon attainted jurors; viz. perpetual infamy, and if the cause of action were above forty pounds value, a forfeiture of twenty pounds a-piece by the jurors; or, if under forty pounds, then five pounds a-piece; to be divided between the king and the party injured. So that a man may now bring an attaint, either upon the statute or at common law, at his election; and in both may reverse the former judgment. But, the practice of setting aside verdicts upon motion, and granting new trials, has so superseded the use of both sorts of attaints, that there is hardly any instance of an attaint later than the sixteenth century.

ATTAINT, or ATTEINT, in horsemanship, a hurt in a horse's leg, proceeding either from a blow with another horse's foot, or from an overreach in frosty weather, when a horse, being rough-shod, or having shoes with long caulkers, strikes his hinder feet against his fore legs.

ATTALIA, in ancient geography, a sea-port of Pamphylia, seated on a bay of the Mediterranean sea; founded by one of the Attali, kings of Pergamus. In this city Paul and Barnabas preached, about A. D. 49; and it had bishops in the fifth and sixth centuries. It is now called SATTALIA.

ATTALICÆ VESTES, in antiquity, garments made of a kind of cloth of gold. They took the denomination from Attalus, surnamed Philometer, a wealthy king of Pergamus, who was the first, according to Pliny, who caused gold to be woven into cloth.

ATTELABUS, in zoology, a genus of insects belonging to the order of coleoptera, or the beetle kind. It has four wings, of which the superior are crustaceous, and serve as a sheath or cover to the inferior, which are membranous. The head tapers behind, and is inclined; the feelers turn thicker towards the apex. The species are thirteen. 1. A. apiarus is bluish, with red elytra, and three black belts. It is a native of Germany. 2. A. avellana is black, with the breast, feet, and elytra red. 3. A. betula has springy legs, and the whole body is of a dark red. It frequents the leaves of the birch. 4. A. buprestoides is of a dark color, with a globular breast, and nervous elytra. It is a native of Europe. 5. A. ceramboides, is of a blackish red color, and the elytra is furrowed. It frequents the spongy boletus, a species of mushroom. 6. A. coryli is black, with red elytra, or crustaceous wings. 7. A. curculionoides is black, with red elytra and breast. These two last species, and the avellana, frequent the leaves of the hazel and filbert-nut trees. 8. A. formicarius is black, with red elytra, and a double white belt towards the base. It is a native of Europe. 9. A. melanurus is black, with testaceous elytra, black at the apex. It is a native of Sweden. 10. A. mollis is hairy and yellowish, with pale elytra, and three belts. It is a native of Europe. 11. A. Pennsylvanicus is black, with red elytra, a black belt round the middle, and another towards the apex of the elytra. It is a native of Philadelphia. 12. A. sipylus is green, with a hairy breast, and a double yellow belt upon the

elytra. 13. A. Surinamensis has a double indentation, or two teeth, in the top of the elytra.

ATTEM'PER, *v.* & *adj.* ATTEM'PERATE, ATTEM'PERANCE, ATTEM'PERLY. Lat. of the middle ages, *attempero*. Lat. *temperare*, to abate, the predominant qualities of a thing. To moderate, to accommodate.

A man should love his wyf by discretien, patiently and *attemprely*, and than is she as though it were his sister. *Chaucer. The Persones Tale*, v. ii. p. 363.

The joyous birds shrouded in cheerful shade,
Their notes unto the voice *attempered* sweet,
The angel-call, soft trembling voices made,
To the instruments' divine respondence meet.
Spenser.

A monarchy, where is no nobility at all, is ever a pure and absolute tyranny, as that of the Turks; for nobility *attempers* sovereignty, and draws the eyes of the people somewhat aside from the line royal: but for democracies they need not. *Bacon's Essays.*

Phemius! let arts of gods and heroes old,
Attemper'd to the lyre, your voice employ. *Pope.*

Hope must be proportioned and *attemperate* to the promise, if it exceed that temper and proportion, it becomes a tumour and tympany of hope,
Hammond's Pract. Catechism.

Attemper'd suns arise,
Sweet-beam'd, and shedding oft thro' lucid clouds
A pleasing calm. *Thomson.*

In the midst a form divine!
Her eye proclaims her of the Briton line;
Her lion-port, her awe-commanding face,
Attemper'd sweet to virgin-grace.
Gray's Bard.

ATTEMPT, *v.* & *n.* ATTEMPT'ER, ATTEMPT'ABLE, ATTENTATE. Fr. *attenter*; from *tenter*, which is from the Latin *tentare*, to try. To make experiment; to make an effort to accomplish an object; to undertake.

The gentleman, vouching his to be more fair, virtuous, wise, and less *attemptable*, than the rarest of our ladies. *Shakspeare.*

LUCIO. Our doubts are traitors,
And make us lose the good we oft might win
By fearing to *attempt*. *Id. Measure for Measure.*

Alack! I am afraid, they have awak'd,
And 'tis not done; th' *attempt*, and not the deed,
Confounds us. *Id. Macbeth.*

He flatt'ring his displeasure,
Tript me behind; got praises of the king,
For him *attempting*, who was self-subdu'd. *Id.*

He would have cry'd; but, hoping that he dreamt,
Amazement tied his tongue, and stopp'd th' *attempt*.
Dryden.

If we be always prepared to receive an enemy; we shall long live in peace and quietness, without any *attempts* upon us. *Bacon.*

I have nevertheless *attempted* to send unto you, for the renewing of brotherhood and friendship.
1 *Mac.* xii. 17.

Who, in all things wise and just,
Hinder'd not Satan to *attempt* the mind
Of man, with strength entire and free-will arm'd.
Milton.

The Son of God, with godlike force endu'd,
Against th' *attempter* of thy Father's throne. *Id.*

You are no factors, for glory or treasure; but disinterested *attempters*, for the universal good.
Glanville's Scepsis.

Fools only make *attempts* beyond their will,
A wise man's pow'r's the limit of his will.
Congreve.

He that would succeed in a project of gain, must never *attempt* to gain too much; and upon proper occasions, must know how to lose.
Hawkesworth's Telemachus.

A lion of Numidia, that hunger has made more furious, rushes among the flocks; he kills and tears to pieces without resistance; and the shepherds, instead of *attempting* to defend their sheep, fly with terror and trepidation to preserve themselves. *Id.*

ATTEND', ATTEND'ANCE, ATTEND'ANT, *n.* & *adj.* ATTEND'ER, ATTENT', ATTEN'TION, ATTEN'TIVE, ATTEN'TIVELY, ATTEN'TIVENESS. Lat. *attendo*; from *ad* and *tendo*, to stretch to or towards. To direct the mind to; to look to what one is about; to have the faculties engaged or the affair in hand; to wait.

The fifth had charge, sick persons to *attend*;
And comfort those, in point of death which lay.
Spenser.

He that goeth about to persuade a multitude, that they are not so well governed as they ought to be, shall never want *attentive* and favourable hearers.
Hooker's Ec. Polity.

I will be returned forthwith: dismiss your *attendant* there; look it be done! *Shakspeare. Othello.*

England is so idly king'd,
Her sceptre so fantastically borne;
That fear *attends* her not. *Id.*

I'm never merry, when I hear sweet musick:
The reason is, your spirits are *attentive*.
Id. Merchant of Venice.

My pray'rs and wishes always shall *attend*
The friends of Rome. *Addison's Cato.*

A vehement, burning, fixed, pungent pain in the stomach, *attended* with a fever. *Arbuthnot on Diet.*

I saw most of them *attentive* to three Sirens, distinguished by the names of Sloth, Ignorance, and Pleasure. *Tatler.*

The diligent pilot, in a dangerous tempest, doth not *attend* the unskilful words of a passenger. *Sidney.*

The gypsies were there,
Like lords to appear;
With such their *attenders*,
As you thought offenders. *Ben Jonson.*

Now mine eyes shall be open; and mine ears *attent* unto the prayer, that is made in this place.
2 *Chron.* vii. 15.

What can then be less in me, than desire
To see thee, and approach thee, whom I know
Declar'd the Son of God; to hear *attent*
Thy wisdom, and behold thy godlike deeds?
Milton.

Other suns perhaps,
With their *attendant* moons, thou wilt descry,
Communicating male and female light.
Id. Paradise Lost.

Unknown sins have their guilt and shame, and are justly *attended* with known punishments.
Hall's Contemplations.

We all are never weary of receiving, soon weary of *attending*. *Id.*

At length her lord descends upon the plain
In pomp *attended* with a numerous train. *Dryden.*

Hush'd winds the topmast branches scarcely bend,
As if thy tuneful song they did *attend*. *Id.*

Plant anemonies after the first rains, if you will have flowers very forward: but it is surer to *attend* till October. *Evelyn.*

With these four more of lesser fame,
And humble rank *attendant* came;
Hypocrisy with smiling grace,
And Impudence with brazen face,
Contention bold with iron lungs,
And Slander with her hundred tongues. *Moore.*

He [Termosiris priest of Apollo] related past events with such force of expression that they seemed to be present; and with such comprehensive brevity, that *attention* was not wearied; and he foresaw the future by a sagacity that discovered the true characters and dispositions of mankind, and the events which they would produce. *Hawkesworth's Telemachus.*

ATTENTION has also been defined, a due application of the ear, or the eye, as well as of the mind, to any thing said or done, in order to acquire a knowledge thereof.

Attention of mind is not properly an act of the understanding, but rather of the will, by which it calls the understanding from the consideration of other objects, and directs it to the thing in hand. Nevertheless, our attention is not always voluntary; an interesting object seizes and fixes it beyond the power of control. Attention, in respect of hearing, is the stretching or straining of the membrana tympani, so as to make it more susceptible of sounds, and better prepared to catch even a feeble agitation of the air: or, it is the adjusting the tension of that membrane to the degree of loudness or lowness of the sound to which we are attentive. According to the degree of attention, objects make a stronger or weaker impression. Bacon, in his Natural History, observes, that 'Sounds are meliorated by the intension of the sense, where the common sense is collected most to the particular sense of hearing, and the sight suspended. Therefore sounds are sweeter, as well as greater, in the night than in the day; and I suppose they are sweeter to blind men than to others; and it is manifest, that between sleeping and waking, when all the senses are suspended, music is far sweeter than when one is fully waking.' Attention is requisite even to the simple act of seeing: the eye can take in a considerable field at one look; but no object in the field is seen distinctly but that singly which fixes the attention: in a profound reverie that totally occupies the attention, we scarce see what is directly before us. In a train of perceptions, no particular object makes such a figure as it would do singly and apart: for, when the attention is divided among many objects, no particular object is entitled to a large share. Hence, the stillness of night contributes to terror, there being nothing to divert the attention. In matters of slight importance, attention is mostly directed by the will; and, for that reason, it is our own fault if trifling objects make any deep impression. Had we power equally to withhold our attention from matters of importance, we might be proof against any deep impression. But our power fails us here; and, while our attention is thus forcibly attached to one object, others will solicit it in vain.

ATTENUANTS, or ATTENUATING MEDICINES, are such as subtilise and break the humors into finer parts; and thus dispose them for motion, circulation, excretion, &c. They are of extensive use in physic, and come under different denominations, according to the different effects they produce. Thus, when tenacious and viscid juices not only stagnate in the cavities of the vessels, but obstruct the minute ducts of the viscera and emunctories, these medicines, by their inciding and attenuating qualities, discharge the humors, and remove the obstructions; for which reason they are not improperly called aperients. Attenuants produce so great a variety of effects, that it is proper we should be well acquainted with their several kinds, as appropriated to the several disorders, and know which will prove most serviceable in each. According to Hoffman, the dissolving and attenuating of viscid crudities in the stomach and primæ viæ, is well answered by the roots of arum, acorus, pepper, ginger, and the like; as also by sal ammoniac, vitriolated tartar, the fixed alkaline salts, and the simple or dulcified spirit of salt. When crude and unconcocted humors are to be evacuated by stool, this intention is very well answered by the neutral salts, as the salts of the purging waters, and the sal polycrestum, with a sufficient quantity of a watery vehicle. When viscid humors, occasioning disorders of the breast, are to be attenuated and expectorated, the intention is most effectually answered by elecampane and orrice roots; and by gum ammoniacum, myrrh, or benjamin, and balsam of Peru; or by regenerated tartar, oxymel of squills, a solution of crabs' eyes in distilled vinegar, and the syrup of tobacco, and the like. When the mass of blood is tainted by thick and tenacious sordes, and the emunctories are by that means obstructed, and the humors contaminated by a saline sulphureous and scorbutic dyscrasy, the most efficacious of the attenuants are the horse-radish, scurvy-grass, water and garden cresses, mustard, gum ammoniac, benjamin, myrrh, the oil of fixed nitre, oil of tartar per deliquium, solutions of nitre, spirit of sal ammoniac, salt of wormwood with lemon juice, and the salts of the medicinal waters. When grumous or coagulated blood, occasioned by contusions or blows, is to be attenuated and again dissolved, the intention is sure to be answered by the roots of Solomon's Seal, vinegar, and crabs' eyes, the regenerated tartar, and nitre prepared with antimony. And in cases where the lymph has acquired a preternatural thickness and viscidity, especially if from a venereal taint, the curative intention is most effectually answered by guaicum, the acrid tincture of antimony, calomel, Æthiop's mineral, and the like; which, when skilfully used, are of singular efficacy in dissolving and attenuating the viscid juices impacted in the glands of the liver.

ATTEN'UATE, *v.* & *n.* } Lat. *attenuo*, to
ATTENUA'TION } thin; from *ad* and *tenuis*, to thin; from *tendo*, to stretch. To draw out in length or superficial extent; to lessen or thin; to dilate.

Chiming with a hammer upon the outside of a bell, the sound will be according to the inward concave of the bell; whereas the elision, or *attenuation* of the air, can be only between the hammer and the outside of the bell. *Bacon.*

Vivification ever consisteth in spirits *attenuate*, which the cold doth congeal and coagulate. *Id.*

The ingredients are digested and *attenuated* by heat; they are stirred and constantly agitated by winds. *Arbuthnot.*

Of such concernment too is drink and food,
T' encrassate or *attenuate* the blood.
Dryden's Translation of Lucretius.

ATTENUATION is defined more generally by Chauvin, the dividing or separating of the minute parts of any body, which before, by their mutual nexus or implication, formed a more continuous mass. Accordingly, among alchemists we sometimes find the word used for pulverisation, or the act of reducing a body into an impalpable powder, by grinding, pounding, or the like.

ATTENUATION, in medicine, the lessening the power or quantity of the morbific matter.

ATTERBURY (Bishop Francis), son of Dr. Lewis Atterbury, was born at Milton in Buckinghamshire, in 1662; educated at Westminster, and thence elected to Christ-Church, in Oxford, where he soon distinguished himself by his genius. In 1687 he was made M.A., when he exerted himself in the controversy with the papists, vindicated Luther in the strongest manner, and displayed an uncommon fund of learning, enlivened with great vivacity. In 1690 he married Miss Osborn, a lady of great beauty, but moderate fortune. About 1690 he took orders, and in 1691 was elected lecturer of St. Bride's church in London, and preacher at Bridewell chapel. He was soon after appointed chaplain to king William and queen Mary. The share he took in the controversy against Bentley, (about the authenticity of Phalaris's Epistles) is now clearly ascertained. In 1700 a still larger field of activity opened, in which Atterbury was engaged four years with Dr. Wake (afterwards archbishop of Canterbury), and others, concerning 'the Rights, Powers, and Privileges of Convocations;' in which he displayed so much learning and zeal for the interests of his order, that the lower house of Convocation returned him their thanks, and the university of Oxford complimented him with the degree of D.D. January 29, 1700, he was installed archdeacon of Totness. The same year he was engaged, with some other learned divines, in revising an intended edition of the Greek Testament, with Greek Scholia, collected chiefly from the fathers, by Mr. Archdeacon Gregory. At this period he was popular, as preacher at the Rolls chapel; an office which had been conferred on him by Sir John Trevor, in 1698, when he resigned Bridewell. Upon the accession of queen Anne, in 1702, Dr. Atterbury was appointed one of her chaplains; and in October 1704, was advanced to the deanery of Carlisle. About two years after this, he was engaged in a dispute with Mr. Hoadly, concerning the advantages of virtue, with regard to the present life; occasioned by his sermon, preached August 30, 1706, at the funeral of Mr. Thomas Bennet, a bookseller. In 1707 Sir Jonathan Trelawney, bishop of Exeter, appointed him one of the canons residentiaries of that church. In 1709 he was engaged in a fresh dispute with Mr. Hoadly, concerning 'Passive Obedience;' occasioned by his Latin sermon, entitled 'Concio ad Clerum Londinensem, habita in Ecclesia S. Elphegi.' In 1710 came on the famous trial of Dr. Sacheverell, whose remarkable speech on that occasion was generally supposed to have been drawn up by our author, in conjunction with Dr. Smalridge and Dr. Freind. The same year Dr. Atterbury was unanimously chosen prolocutor of the lower house of Convocation, and had the chief management of affairs in that house. May 11, 1711, he was appointed by the convocation one of the committee for comparing Mr. Whiston's doctrines with those of the church of England; and in June following, he had the chief hand in drawing up 'A Representation of the present State of Religion.' In 1712 he was made dean of Christ Church, notwithstanding the strong interest and warm applications of several great men in behalf of his competitor, Dr. Smalridge. In the beginning of June, 1713, the queen advanced him to the bishopric of Rochester, with the deanery of Westminster in commendam. He was confirmed July 4, and consecrated at Lambeth next day. The death of the queen, in 1714, put an end to all farther hopes of advancement; for the new king treated him with great coolness, doubtless aware of either the report or the fact of his offer, on the death of Anne, to proclaim the Pretender in full canonicals, if allowed a sufficient guard. This dislike operated like oil on the inflammable mind of Atterbury, who not only refused to sign the loyal declaration of the bishops in the rebellion of 1715, but suspended a clergyman for lending his church for the performance of divine service to the Dutch troops brought over to serve against the rebels. Not content with a constitutional opposition, he entered into a correspondence with the Pretender's party, in favor of the dispossessed family; for which offence he was apprehended in August 1722, and committed to the Tower; and in the March following a bill was brought into the House of Commons, for the infliction of pains and penalties. This measure, which on constitutional grounds can never be defended, and which indeed was supported chiefly on the urgency of the particular time and case, met with considerable opposition in the Lords, and was resisted with great firmness and eloquence by the bishop, who maintained his innocence with his usual acuteness and dexterity. His guilt however has been tolerably well proved by documents since published; and nothing more is necessary to warrant a confirmed moral distaste to his character, than the contemplation of such a scene of smooth dissimulation and hypocrisy. By this bill the bishop was deprived and outlawed, and no British subject was permitted to visit him abroad, without the king's sign manual; which however was not refused to his relatives.

On the 27th, this prelate having that day taken leave of his friends, who, from the time of passing the bill against him to the day of his departure, had free access to him in the Tower, embarked on board the Aldborough man of war, and landed the Friday following at Calais. When he went on shore, having been informed that lord Bolingbroke, who, after the rising of the parliament, had received the king's pardon, was arrived at the same place on his return to England, he said, with an air of pleasantry, 'Then I am exchanged!' When bishop Atterbury first

entered upon his banishment, Brussels was the place destined for his residence; but he was compelled to leave that place, and retire to Paris. He next changed his abode for Montpelier, in 1728; and, after residing there about two years, returned to Paris, where he died February 15, 1731. As a composer of sermons, Dr. Atterbury still retains the highest reputation; his periods are easy and elegant, his style flowing and beautiful; but as a critic or disputant, he is rather dexterous than accurate, and rather popular than profound.

ATTERBURY (Dr. Lewis), eldest son of the Dr. and brother to the bishop, was born at Caldecot, in Bucks, in 1656; educated at Westminster, and sent to Oxford in 1674. In 1679 he entered into orders, and commenced A. M. in 1680; in 1683 he was made chaplain to Sir W. Pritchard; in 1684 rector of Symel; in 1687, L.L.D. and in 1691 lecturer of St. Mary-at-Hill, London. In 1695 he was elected preacher at Highgate, and was appointed one of the six preaching chaplains to the princess Anne of Denmark, at Whitehall and St James's; in which place he was continued after she became queen, and during part of the reign of George I. In 1707 the queen appointed him rector of Shepperton, and in March 1709, the bishop of London collated him to the rectory of Hornsey. He died at Bath, of a paralytic disorder, in 1731. He published, during his life, 2 vols. of Sermons, and four occasional ones, besides other pieces. He was remarkably benevolent and charitable. While he resided at Highgate, observing that the poor in that neighbourhood were much at a loss for medical advice, he studied physic, and practised it gratis among them: he also gave £10 annually to a teacher, to instruct young girls at Newport Pagnel, and burdened his estate with this annual payment for ever. He left 200 volumes of pamphlets to the library of Christ Church, Oxford.

ATTES, in fabulous history, a son of Calaus of Phrygia, who was born impotent. The worship of Cybele was introduced among the Lydians by him, after which he was highly honored by the goddess. His success awakened a jealousy in Jupiter, and he sent a wild boar to lay waste the country, that Attes might be destroyed.

ATTEST', *v.* & *n.* } Lat. *attestor; ad* and
ATTEST'ER, } *testor*, to call to witness.
ATTESTA'TION. } To corroborate or strengthen by witness, i. e. by one who has had the evidence of one or more of the senses.

With the voice divine
Nigh thunderstruck, th' exalted man, to whom
Such high *attest* was giv'n, a while survey'd
With wonder. *Paradise Regained.*

Many particular facts are recorded in holy writ, *attested* by particular pagan authors. *Addison.*

We may derive a probability, from the *attestation* of wise and honest men, by word or writing; or the concurring witness of multitudes, who have seen and known, what they relate. *Watts.*

Prodigious actions may as well be done
By weaver's issue, as by prince's son.
This arch-*attestor* of the publick good,
By that one deed ennobles all his blood.
Dryden's Absalom and Achitophel.

ATTHIS, a daughter of Cranaus, the second king of Athens. According to Apollodorus she gave her name to Attica.

ATTIC, any thing relating to Attica, or Athens, or any thing peculiarly elegant or excellent.

ATTIC BASE, a peculiar kind of base used by the ancient architects in the Ionic order; and by Palladio, and some others, in the Doric.

ATTIC ORDER, or ATTICS, in architecture, a kind of order, after the manner of a pedestal, raised upon another larger order, by way of crowning, or to finish the building. See ARCHITECTURE, Index.

ATTIC SALT, a delicate, poignant kind of wit, peculiar to the ancient Athenians. The term is applied to any similar piece of humor in modern writings.

ATTIC STORY, in architecture, a story in the upper part of a house, where the windows are usually square.

ATTIC WITNESS, a witness incapable of corruption.

ATTICA, an ancient state of Greece, situated along the north coast of the gulph of Saron, bounded on the west by Megara, mount Cithæron, and part of Bœotia; on the north by the gulf of Euripus (now called Stretto di Negroponte, or the Strait of Negropont), and the rest of Bœotia; and on the east by the Euripus. It extended in length from north-west to south-east, about sixty miles; its breadth from north to south was fifty-six, decreasing as it approached the sea. The soil of this country was naturally barren and craggy, though by the industry of its inhabitants it produced all the necessaries of life. On this account, Attica was less exposed to invasions than other more fertile countries; and hence, it preserved its ancient inhabitants, beyond all the other kingdoms in its neighbourhood; so that they were reputed to be the spontaneous productions of the soil; and as a badge of this, Thucydides tells us, they wore golden grasshoppers in their hair.

The principal mountains of Attica were Laurium, celebrated for its silver mines, and situated near the Sunian promontory; Pentelicus, famous for its quarries of white marble; and Hymettus, near Athens, remarkable for the abundance and fineness of its honey. Other mountains mentioned in history, are Ægialeus, Brilessus, Icarius, Lycabettus, and Parnethus. Its principal rivers were the Cephisus, Eridanus, and Ilissus. Although the mountainous character of the country rendered it unpromising and sterile for grain generally, barley was produced in abundance; and Aristotle observes that the fruits of Attica had a peculiar sweetness. The culture of the olive tree was protected by law, and a fine of 200 drachmæ (upwards of £8 sterling) was paid by any person who rooted up on his grounds more than two trees in a year, unless for the service of the gods. The olives called colymbades, considered larger and of richer flavor than any other, retain their name to this day, and were, until the late civil wars, monopolised for the personal use of the grand signior.

The chief cities of Attica were Athens, the capital. See ATHENS. Next to it Eleusis, situated on the same gulf, near the coasts of Megara,

and next to that Rhamnus, famed for the temple of Amphiaraus, and the statue of the goddess Nemesis, sculptured by Phidias, from a block of Parian marble, which the Persians had brought thither to assist in erecting a trophy of their proposed victory. It was ten cubits high, and was inscribed with the name of his favorite pupil Agoracritus. Nor ought we to omit to mention the town of Marathon, ten miles north-east of Athens, immortalised by the victory gained there by Miltiades over the Persians. On the plain of the battle the Athenians erected small columns, on which the names of those warriors who fell were inscribed. A monument afterwards raised to Miltiades himself, was set apart, a small distance from the rest: in the intervals between these columns were trophies, bearing the arms of the Persians.

Attica was divided into ten tribes, called φυλαι; and these again were subdivided into 174 boroughs, or δημοι. The inhabitants were of three classes: 1. Citizens, πολιται; whose numbers underwent little change from the time of Cecrops, and averaged about 20,000. They had a right, from a certain property, to vote in the general assembly; about 60,000 others were freemen without this privilege. Those who sprung from parents both of whom were Athenian citizens, were considered freeborn, though occasionally the privilege was extended to such as had one parent only of this class. The honor was conferred on foreigners by a vote of the people, ratified at two solemn assemblies; at the second of which it was requisite that 6,000 citizens should be present. But no one, except a free born Athenian, could hold an archonship. 2. Foreigners settled in Attica, and enrolled in the public registers, μετοικοι. They were protected by the state; but were not permitted to hold any public office. Each μετοικος selected a citizen as his protector, προστατης; who stood to him much in the same relation as the Roman patronus did to his cliens. They paid an annual tribute to the state of twelve drachmæ (about nine shillings), and in default of payment they were sold as slaves. Their number (males only) in the time of Demetrius of Phalerum, (307 B. C.) was 10,000. 3. Slaves, δουλοι, who, when numbered at the same time, amounted to 400,000. The agricultural, mining, and menial labor was performed by them; as well as the greater part of that of the public works, and of private manufactures. The entire population of ancient Attica may be taken at about half a million, or nearly 900 to a square mile; about one-fourth of that of Middlesex. For the political history of this interesting country, including the details of its recent struggles for liberty, see our article GREECE.

ATTICISE, ATTICISM, ATTICK, ATTICAL. } Gr. Αττικιζω, to speak or write after the Attic dialect.

There while they acted and overacted, among other young scholars, I was a spectator; they thought themselves gallant men, and I thought them fools; they made sport, and I laughed; they mispronounced, and I misliked; and to make up the *atticism*, they were out, and I hist. *Milton.*

If any will still excuse the tyrant for *atticising* in those circumstances, it is hard to deny them the glory of being the faithfullest of his vassals.

Bentley. Dissertation on Phalaris.

ATTICUS (Titus Pomponius), one of the most remarkable characters of ancient Rome. He managed himself with such address, that he preserved the esteem and affection of all parties. He sent money to the younger Marius, and yet was a favorite with Sylla. He pleased Cæsar without offending Pompey. He sent supplies to Brutus, while he was doing kind offices to Antony. His strict friendship with Cicero did not hinder him from having great intimacy with Hortensius; and in the contests between Antony and Augustus, he preserved the regard of both. The contests at Rome between the parties of Sylla and Marius, however, induced him to retire to Athens, where he gained the affection of the Athenians so much, that the day he left them was a day of mourning. He was very fond of learning, and kept several librarians and readers. He might have obtained the most considerable posts in the republic; but chose rather not to meddle, because in the corruption and faction which then prevailed, he could not discharge them according to the laws. He wrote annals, which Cicero praises, as having been of great use to him. He married his daughter to Agrippa, and died at the age of 77.

ATTICUS (Herodes), a celebrated orator of antiquity, was born at Marathon. His lectures on elocution were heard with such applause, that he was sent for by Titus Antoninus, to instruct Marcus Aurelius, and Lucius Verus. He was honored with the consulship, and other high offices. He generously erected an aqueduct at Troas, of which he had been made governor, and some other public buildings in different places of the empire, equally useful and magnificent. He was particularly liberal as a benefactor to Athens. He died at Marathon, at the age of 76.

ATTICUS, patriarch of Constantinople, was by birth an Armenian, and flourished in the fifth century. In A. D. 406, he condemned John Chrysostom, by which he got possession of the patriarchate; but Pope Innocent I. being offended at his proceedings, excommunicated him. However, when Chrysostom died, he was allowed to retain his seat. He died in 427.

ATTILA, king of the Huns, lived in the fifth century. He was surnamed 'the Scourge of God,' a title which all offensive conquerors have more or less merited, though none but Attila is said to have assumed and gloried in it. He may justly be ranked among the greatest conquerors, for there was scarcely any province in Europe which did not feel the weight of his victorious arms. Attila deduced his descent from the ancient Huns, who had formerly contended with the monarchs of China. His features, according to the observation of a Gothic historian, bore the stamp of his national origin; and the portrait of Attila exhibits the genuine deformity of a modern Calmuck; a large head, a swarthy complexion, small, deep-seated eyes, a hooked nose, a few hairs in the place of a beard, broad shoulders, and a short square

body, of nervous strength, though of a disproportioned form. The haughty demeanor of this tyrant expressed the idea he entertained of his superiority above the rest of mankind; and he had a custom of fiercely rolling his eyes, as if he wished to enjoy the terror which he inspired. Yet this savage hero was not inaccessible to pity; his suppliant enemies might confide in his assurance of peace or pardon; and he was considered by his subjects as a just and indulgent master. He delighted in war; but, after he had ascended the throne in a mature age, his head, rather than his hand, achieved the conquest of the north; and the fame of an adventurous soldier was usefully exchanged for that of a prudent and successful general. The effects of mere personal valor are indeed so inconsiderable, that victory, even among barbarians, depends on the degree of skill, with which the passions of the multitude are guided for the service of a single man. The arts of Attila were skilfully adapted to his age and country. It was natural that the Scythians should adore the god of war; but as they were incapable of forming either an abstract idea, or a corporeal representation of him, they worshipped him under the symbol of an iron scymitar. One of the shepherds of the Huns perceived that a heifer, who was grazing, had wounded herself in the foot; and curiously followed the tract of the blood, till he discovered among the long grass, the point of an ancient sword; which he dug out of the ground, and presented to Attila. That artful prince accepted with pious gratitude this celestial favor; and, as the rightful possessor of the sword of Mars, asserted his divine and indefeasible claim to the dominion of the earth. Thus this favorite of Mars acquired a sacred character, which rendered his conquests easy and permanent; and the barbarian princes confessed, in the language of devotion or flattery, that they could not presume to gaze with a steady eye on the divine majesty of the king of the Huns. His brother Bleda, who reigned over a considerable part of the nation, was compelled to resign his sceptre and his life. Yet even this cruel act was attributed to a supernatural impulse; and the vigor with which Attila wielded the sword of Mars convinced the world that it had been reserved alone for his invincible arm. But the extent of his empire affords the only remaining evidence of the number and importance of his victories; and the Scythian monarch, however ignorant of the value of science and philosophy, might lament that his illiterate subjects were destitute of the art which could perpetuate the memory of his exploits. Attila, indeed, may claim the title of supreme and sole monarch of the barbarians. He alone, among the conquerors of ancient and modern times, united the two mighty kingdoms of Germany and Scythia. Thuringia, which stretched beyond its actual limits as far as the Danube, was in the number of his provinces: he interposed, with the weight of a powerful neighbour, in the domestic affairs of the Franks; and one of his lieutenants chastised, and almost exterminated, the Burgundians of the Rhine. He subdued the islands of the ocean, the kingdoms of Scandinavia, encompassed and divided by the waters of the Baltic; and the Huns derived a tribute of furs from that northern region, which has been protected from all other conquerors by the severity of the climate, and the courage of the natives. Towards the east, it is difficult to circumscribe the dominion of Attila over the Scythian deserts; yet we may be assured that he reigned on the banks of the Volga; that he was dreaded, not only as a warrior, but as a magician; that he vanquished the khan of the formidable Geougen; and that he sent ambassadors to negociate an equal alliance with the empire of China. In the proud review of the nations who acknowledged the sovereignty of Attila, and who never entertained during his lifetime the thought of a revolt, the Gepidæ and the Ostrogoths were distinguished by their numbers, their bravery, and the personal merit of their chiefs. Ardaric, king of the Gepidæ, was the faithful and sagacious counsellor of the monarch; who esteemed his intrepid genius, whilst he loved the mild and discreet virtues of the noble Walamir, king of the Ostrogoths. The crowd of vulgar kings, who served under the standard of Attila, were ranged in the submissive order of guards and domestics round the person of their masters. They watched his nod; they trembled at his frown; and at the first signal of his will they executed without hesitation his absolute commands. In time of peace the dependent princes with their national troops attended the royal camp in regular succession; but when Attila collected his military force he was able to bring into the field an army of five, or according to some, 700,000 barbarians. See Huns. The circumstances attending Attila's death (about A. D. 453) were remarkable; from the festive throng, which celebrated his nuptials with a beautiful virgin named Ildico, he retired late to bed, oppressed with wine, and during the night a blood-vessel burst and suffocated him. In the morning the bride was found by the bed-side, bewailing his death and her own danger. His body was exposed in the plain, while the Huns marched round it in martial order, singing funeral songs to his praise; and was afterwards enclosed in coffins of gold, silver, and iron, and interred privately in the night. To prevent the violation of his remains, by the discovery of his grave, the slaves who were employed on the occasion were put to death.

ATTILATUS Equus, in old law Latin, a horse dressed in his harness, for the plough or cart.

ATTILUS, in ichthyology, a river-fish, of the sturgeon kind, called by some adello, adano, and adeno. It grows to a very large size, and when full grown, casts its scales, and never has any fresh ones, but remains perfectly smooth; in which it differs from the common sturgeon. But it seems not to differ in any essential point from the hussu germanorum. It is an eatable fish, but is greatly inferior in taste to the sturgeon.

ATTINGA, in ichthyology, a species of the diodon.

ATTIR'E, *v.* & *n.* } Of uncertain derivation.
ATTIR'ING, } It may be observed, without deciding the question
ATTOU'R. } of etymology, that the tiara was an head-dress worn by Phrygian and Persian priests and kings

at sacrifices. Hence the word is found in Greek authors, and is probably derived from the Persic—

Phrygia vestitur bucca tiara. *Juvenal.*

The high crowned covering for the head, still worn by the natives of Persia, in contradistinction to the low turban of the Turks, is worthy of remark. The word is sometimes applied to the mitres of bishops. The French *attirer*, is to draw to; *attirail*, is the apparatus necessary to an equipage or adorning.

Let it likewise your gentle breast inspire,
With sweet infusion; and put you in mind
Of that proud maid, whom now those leaves *attire*,
Proud Daphne. *Spenser.*

It is no more disgrace to Scripture, to have left things free, to be ordered by the church; than for Nature, to have left it to the wit of man, to devise his own *attire*. *Hooker.*

My Nan shall be the queen of all the fairies;
Finely *attired* in a robe of white.
Shakspeare. Merry Wives of Windsor.

With the linen mitre shall he be *attired*.
Lev. xvi. 4.

After that, the Roman *attire* grew to be in account, and the gown to be in use among them.
Davies on Ireland.

Now the sappy boughs
Attire themselves with blooms. *Philips.*

Whose herds with milk, whose fields with bread,
Whose flocks supply him with *attire*,
Whose trees in summer yield him shade,
In winter fire. *Pope's Ode on Solitude.*

ATTIRE, in hunting; the attire of a stag, if perfect, consists of bur, pearls, beam, gutters, antler, fur-antler, royal, fur-royal, and crotches; and that of a buck, of the bur, beam, brow-antler, advancer, palm, and spellers.

ATTIRET (John Denis), a French jesuit and painter, was born at Dole, in Franche Comté, in 1702, and died in 1768 at Pekin, whither he had accompanied the mission. He was employed by the emperor Kien Long to paint many battle-pieces, with which he was so much pleased, that he offered him the dignity of a mandarin, and when he declined the honor of the title, he granted him the revenues of the post.

ATTITUDE. Ital. *attitudine*. Supposed to be corrupted from low Latin *aptitudo*, from *apto*, I fit. A term used by the Italians in the art of design, to denote the gesture fitted for the display of grace, beauty, or other quality of form; expressive posture.

Bernini would have taken his opinion, upon the beauty and *attitude* of a figure. *Prior's Ded.*

They were famous originals, that gave rise to statues, with the same air, posture, and *attitudes*.
Addison.

ATTIUM, in ancient geography, a promontory on the north-west of Corsica, now called Punta di Acciuolo.

ATTLEBOROUGH, a town in Norfolk, once the capital of the county, on the road from Thetford to Norwich, about twelve miles from each, and ninety-three from London. It is also called Attlebury. Market, Thursday.

ATTOCK, a river of Asia, which rises in the Tartarian mountains, north of Hindostan, and passing by Cabul, falls into the Indus. By a treaty between Kouli Khan, Schah of Persia, and the Great Mogul, it was made the boundary between Persia and India.

ATTOCK, Atac, a limit, a town in the province of Lahore, on the east side of the Indus, which is here, in the month of July, from three-fourths to one mile across. Lat. 33° 6′ N., long. 71° 15′ E. The ancient name of Attock, to this day, is Varanas, or Benares; but it is more generally known by the name of Attock. The fortress was built by Acber, A. D. 1581.

'It is remarkable,' says Mr. Hamilton, 'that the three great invaders of Hindostan, Alexander, Tamerlane, and Nadir Shah, in three distant ages, and with views and talents extremely different, advanced by the same route, with hardly any deviation. Alexander had the merit of discovering the way: after passing the mountains he encamped at Alexandria Paropamisana, on the same site with the modern city of Candahar; and having subdued or conciliated the nations seated on the north west-bank of the Indus, he crossed the river at Taxila, now Attock, the only place where the stream is so tranquil that a bridge can be thrown over it.'

ATTOLLENS, in anatomy, an appellation given to several muscles otherwise called levatores and elevatores.

ATTONITUS MORBUS, ATTONITUS STUPOR, an apoplexy; also being planet-struck or blasted.

ATTOR'N, ATTOR'NEY, *v.* & *n.* ATTOR'NEYSHIP. } Fr. *attourner; attornare*, Du Fresne, to turn over to, or transfer; to perform service. Ang.-Sax. tyrnan, to turn.

As I was then,
Advertising and holy to your business,
Nor changing heart with habit; I am still
Attornied to your service. *Shakspeare.*

But marriage is a matter of more worth,
Than to be dealt in *attorneyship*. *Id.*

I will attend my husband! it is my office;
And will have no *attorney* but myself;
And therefore let me have him home. *Id.*

I am a subject,
And challenge law: *attorneys* are deny'd me;
And therefore personally I lay my claim,
To mine inheritance. *Id.*

The king's *attorney* on the contrary,
Urg'd on examinations, proofs, confessions. *Id.*

Despairing quacks with curses fled the place;
And vile *attorneys*, now an useless race. *Pope.*

An *attorney* at law answers to the procurator, or proctor, of the civilians and canonists. And he is one who is put in the place, stead, or turn of another, to manage his matters of law.
Blackstone's Commentaries.

ATTORNARE PERSONAM, in common law, to depute a representative, or proxy, to appear and act for another.

ATTORNARE REM, to turn over money and goods, that is, to assign and appropriate them to certain persons or uses.

ATTORNATO FACIENDO, vel RECIPIENDO, in common law, a writ to command a sheriff, or steward, to receive and admit an attorney to appear for the person that oweth suit of court, to a county or hundred. Every person that owes suit to the county court, court-baron, &c. may make an attorney to do his suit.

ATTORNEY AT LAW is one who is put in the place, stead, or turn of another, to manage his

matters at law. Formerly every suitor was obliged to appear in person, to prosecute or defend his suit (according to the old Gothic constitution,) unless by special licence under the king's letters patent. This is still the law in criminal cases; and an idiot cannot to this day appear by attorney, but in person; for he hath not discretion to enable him to appoint a proper substitute; and, upon his being brought before the court in so defenceless a condition, the judges are bound to take care of his interests, and they shall admit the best plea in his behalf that any one present can suggest. But, as in the Roman law, when it was in use, one person could not act in the name of another; yet, as this was attended with no small inconvenience, men were allowed to litigate by procurators; so with us, on the same principle of convenience, it is now permitted in general, by divers ancient statutes, whereof the first is statute West. 2, c. 10, that attorneys may be made to prosecute or defend any action in the absence of the parties to the suit. Attorneys are now, therefore, formed into a regular profession; they are admitted to the execution of their office by the superior courts of Westminster hall; are in all points officers of the respective courts in which they are admitted; and as they have many privileges on account of their attendance there, so they are peculiarly subject to the censure and animadversion of the judges. No man can practise as an attorney in any of these courts, but such as is admitted and sworn an attorney of that particular court. To practise in the court of chancery, it is also necessary to be admitted a solicitor therein: and by the statute 22 Geo. II. c. 49, no person shall act as an attorney in the court of quarter sessions, but such as has been regularly admitted in some superior court of record. So early as the statute 4 Hen. IV. c. 18, it was enacted that none should be admitted attorneys but such as were virtuous, learned, and sworn to do their duty. And many subsequent statutes have laid them under farther regulations.

By 2 Geo. II. c. 23, all attornies shall be sworn, administered, and enrolled, before they are allowed to sue writs in the courts of Westminster; and, after the 1st of December, 1730, none shall be permitted to practise but such as have served a clerkship of four years to an attorney, and they shall be examined, sworn, and admitted in open court. Any person duly admitted a solicitor, may be admitted an attorney, and vice versa. An attorney's bill may be taxed, and if it be reduced a sixth part, he is to pay the costs of taxation.

By 34 Geo. III. c. 14, every person bound as clerk to an attorney of the courts at Westminster, pays £100 stamp duty. After admission in one court, no farther duties are required for the others. Nor are farther duties required for new contracts with new masters. An attorney is privileged from being pressed as a soldier, but he may be drawn for the militia. He need not serve any parochial or borough office against his will. They may sue and be sued only in their own courts. Special bail is not required of them as defendants; as plaintiffs they may demand it. Payment to the attorney is payment to the principal. An attorney has a lien on the money recovered for his client, and he may retain the amount of his bill. Attornies may be summarily punished by an attachment, or by being struck off the rolls of the court for ill-practice, fraud, or corruption; and sometimes (in order to be called to the bar) they are struck off the roll on their own application.

ATTORNEY GENERAL, a great law-officer of the crown, whose business is to exhibit informations, and prosecute for the crown, in matters criminal; also to file bills in the exchequer, for any thing concerning the king in inheritance or profits; and others may bring bills against the king's attorney. His proper place in court, upon any special matters of a criminal nature, wherein his attendance is required, is under the judges on the left hand of the clerk of the crown; but this is only upon solemn and extraordinary occasions, for usually he does not sit there, but within the bar in the face of the court. The queen consort is also privileged to have an attorney-general.

ATTORNEY OF THE DUCHY COURT OF LANCASTER is the second officer in that court; placed as assessor to the chancellor of the court.

ATTORNMENT, attourner, old French, to turn over to; under the feudal system, the assent of a tenant to his lord's alienation of the seignory; thus securing him against having his fealty and services transferred to another without his knowledge. There was a reciprocal obligation on the tenant to obtain the lord's consent to any alienation.

ATTRACT' *v.* & *n.*
ATTRACTABIL'ITY,
ATTRAC'TION,
ATTRAC'TIVE, *n.* & *adj.*
ATTRAC'TIVELY,
ATTRAC'TIVENESS,
ATTRAC'TOR.

Lat. *attraho, attractum*, to draw to; from *ad* and *traho*, from *trans veho*, to carry over, Voscius. To draw to, bring over; to exercise a real but subtle agency in drawing an object to its subject; to conciliate, to win the heart, to gain the affections.

Setting the *attraction* of my good parts aside, I have no other charms. *Shakspeare.*

The drawing of amber and jet, and other electrick bodies; and the *attraction* in gold, of the spirit of quicksilver at distance; and the *attraction* of heat, at distance; and that of fire, to naphtha; and that of some herbs to water, though at distance; and divers others, we shall handle. *Bacon.*

What, if the sun
Be centre to the world; and other stars,
By his *attractive* virtue and their own
Incited, dance about him various rounds?
Milton.

Adorn'd
She was indeed, and lovely, to *attract*
Thy love; not thy subjection. *Id.*

Loadstones and touched needles, laid long in quicksilver, have not amitted their *attraction*.
Brown's Vulgar Errours.

If the straws be in oil, amber draweth them not; oil makes the straws to adhere so, that they cannot rise unto the *attractor*. *Id.*

A man should scarce persuade the affections of the loadstone, or that jet and amber *attracteth* straws and light bodies. *Id.*

Shew the care of approving all actions so, as may most effectually *attract* all to this profession.
Hammond.

Feels darts and charms *attracts* and flames,
And woo and contract in their names. *Hudibras.*

There were then the same incentives of desire on the one side, the same *attractiveness* in riches, the same relish in sovereignty. *South. Sermon* xiv. 293.

Attraction may be performed by impulse, or some other means; I use that word, to signify any force by which bodies tend towards one another.
Newton's Opticks.

Attract, attracted to, the next in place,
Form'd and impell'd its neighbour to embrace.
Pope.

Deign to be lov'd, and ev'ry heart subdue!
What nymph could e'er *attract* such crowds, as you?
Id.

Homer hurries and transports us with a commanding impetuosity, Virgil leads us with an *attractive* majesty. *Id.*

As the *attractive* power in bodies is the most universal principle which produceth innumerable effects, so the corresponding social appetite in human souls is the great spring and source of moral actions.
Berkeley.

Ah! why was ruin so *attractive* made,
Or, why fond man so easily betray'd?
Why heed we not, while mad we haste along,
The gentle voice of Peace, or Pleasure's song?
Collins.

Forests in every age must have had *attractive* horrors: otherwise so many nations would not have resorted thither to celebrate the rites of superstition.
Beattie.

ATTRACTION. The word attraction is employed to express the power by which bodies approach each other; or rather that which gives them the tendency to this approximation. It is considered and designated differently as its operation is upon greater or less distances, and as the masses or particles of matter are affected by it. In the first instance, viz. that of operation through distance, and upon mass, the power is termed *gravitation*, while *contiguous attraction* denotes the agency of the power as exerted upon minute particles, and as operating upon distances that are not sensible.

All bodies composing the material system of the universe are considered as having a mutual disposition to approach each other, whatever may be the distances at which they are placed. The nature or absolutely essential principle of this gravitating tendency is of course unknown; but many of its laws have been investigated and satisfactorily applied to the explanation of phenomena. The main and leading circumstances which characterise gravitation are these, that its action on bodies is directly as the mass or quantity of matter, and inversely as the square of the distance. These, then, are the laws of gravitation generally. (See GRAVITATION.) But there are other species of attractions which likewise seem to be in operation upon mass and at distance, but which are apparently peculiar in modification. Such are the *magnetic* and *electric attractions*, which some philosophers, however, are disposed to generalize into an identity with the power just adverted to. See MAGNETISM and ELECTRICITY.

But masses of matter are necessarily composed of minute particles, and the power by which this combination of separate particles into a whole or mass is effected, is termed, as we have above stated, contiguous attraction; this being again subdivided into the attraction of cohesion or aggregation; and into chemical attraction or affinity; the former being exerted between particles of different kinds of matter: the first unites bodies so as to form aggregates, the essential properties of which are the same as that of the particles which compose it; the second forming substances which have qualities different from those of the bodies that have entered into combination.

These two varieties of contiguous attraction may perhaps be viewed as ultimately the same power, the difference of their effects being rather referrible to the difference of the material operated upon; but it is necessary to consider them distinctly, as the effects which they respectively produce, are themselves so different.

The attraction of cohesion or aggregation is exerted with the greatest force and effect when the body is at its maximum of solidity. In this case the particles which compose the mass are united by a reciprocal attraction of such energy, that they oppose mechanical attempts at separation, as is instanced in the force required to break a solid compact stone; but the attractive energy seems in different states of solidification to be exerted with different degrees of strength; then, again, from loose solid, the gradation proceeds to absolute liquid, and ultimately to gaseous and vaporous existence; in the ratio indeed of departure from solidity does the attraction of cohesion become weaker and weaker. In the condition of fluidity 'it is only exerted under such a modification, that a slight impulse is sufficient to disunite the parts, and scarcely any resistance is now opposed to any force, the operation of which is to bring these into new arrangements;' and, when vaporous existence obtains, this resistance is entirely overcome, 'the particles instead of attracting, now repel each other; they are made to approximate only by pressure, and they recede when this is withdrawn. Bodies, therefore, exist in the aëriform, the liquid, or the solid state, according as this attraction is exerted between their particles, and it is this power which unites their particles.'

It was supposed by the earlier philosophers, that as the attraction of gravitation influences bodies with a force inversely as the squares of the distance, so the laws of attraction between the particles themselves follow the same ratio; but the adhesion of bodies is found to be much greater than could be inferred from this source, and it was therefore conceived that cohesive attraction is governed by a much higher ratio, and probably the cube of the distances. 'The moderns on the contrary, among whom are Bergman, Guyton Morveau, and others, have remarked that these deductions are too general, because for the most part drawn from the consideration of spherical bodies, which admit of no contact but such as is indefinitely small, and exert the same powers on each other, whichever side may be obverted. They remark likewise, that the consequence depending upon the sum of the attractions in bodies not spherical, and at minute distances from each other, will not follow the inverted ratio of the square of the distance

taken from any point assumed as the centre of gravity, admitting the particles to be governed by that law; but that it will greatly differ according to the sides of the solids which are presented to each other, and their respective distances; insomuch that the attractions of certain particles indefinitely near each other will be indefinitely increased, though the ratio of the powers acting upon the remoter particles, may continue nearly the same.'—*Ure*.

Much however is requisite in application to the rationale of minute attraction, if it may be so expressed, before a generalisation of its laws can be admitted, in the same manner as is done with respect to the principle of gravitation generally. 'Speculation on these heads (says the same able author from whom we have above extracted,) may be regarded in the present state of science as standing much in the same situation as the theory of gravity, which is minutely described in Plutarch, did with regard to astronomy before the time of Newton. As the celestial phenomena were formerly arranged from observation merely, but are now computed from the physical cause, gravitation, so, at present, the science now referred to, is the science of matter of fact duly arranged, without the assistance of any extensive theory, immediately deduced from the figures, volumes, densities, or mutual actions of the particles of bodies.'

As matter of fact, however, it is necessary to observe that to the power of cohesive attraction is opposed those influences which alter the forms of bodies from solids to fluids, and from fluids to vapor; and that aggregation is thus weakened or overcome by three opposing influences, viz. mechanical violence, heat, and chemical agency. The first is instanced in the operation of powdering or pulverising, and other processes by which separation to a greater than natural distance is effected of the constituent particles of matter. With respect to heat it is to be observed, that if a solid substance be exposed to it under circumstances favorable to its action, the volume of the substance is enlarged, the particles composing it are therefore separated from each other, and the attraction by which they were kept in union is counteracted. The enlargement of volume continuing to proceed as the heat is increased, until the point is reached, at which the attraction is so far modified that the body passes into a fluid form. If the application of heat be continued, the particles are still further separated from each other; and this still continues increasing until the attraction between them is overcome, a repulsion is established, and the fluid passes into the aerial form. Chemical action, as we have above remarked, is capable of effecting the same formative change. If a liquid be poured on a solid, it often happens that from the mutual attraction exerted between them, the aggregation of the solid is subverted, its particles are detached and diffused through the liquid so as to be no longer perceptible, and not even to impair the transparency. This constitutes the chemical process named solution, which is merely a case of chemical combination, differing from others in the circumstance that one of the bodies exists in the liquid form, and communicates that form to the other. It is the result of the predominance of the mutual affinity of the liquid and solid over the cohesion of the solid. The affinity exerted to a solid by a substance in the aerial form may in like manner overcome its cohesion and cause it to pass into the aëriform state. And even the mutual attraction exerted between two solids is sometimes such as to diminish the power of cohesion in each so as to admit of their union and their transition to a liquid state.

We have now to notice those changes in bodies, which, as opposed to their mere formative existence, may be regarded as the manifestation more directly and unequivocally of what would be called chemical agency; viz. that, in which the power is exerted between the particles or atoms of different kinds; the result of the union effected by this affinity not being a mere aggregate, having the same essential properties, though perhaps different in form, but being altogether a new material.

It is remarkable that Sir Isaac Newton was the first to indicate with precision, the nature and extent of this power, as well as that of gravitation. In his letter to Mr. Boyle, containing observations on the nature of acids, and in other publications, he speaks of bodies combining in some cases, and refusing to unite in others, because in the one instance an attraction exists, in the other it does not; and he further talks of compounds being again decomposed by the agency of another body, owing to an attraction exerted by that body to one of the principles of the compound, superior in force to the first attraction.

Since the time of Newton, the subject of chemical attraction, or the attraction of affinity, has been investigated with abundant ardor, and with great success; minute observation of its laws and the phenomena it produces, has developed a multitude of most interesting facts and principles which will fall to be noticed under the head of CHEMISTRY, and in other parts of this work. But there is one leading principle by which it is regulated that demands to be noticed in the present article; it is this, that there is a general reciprocity of saturating proportions in uniting bodies; or, in other words, that combination is effected in definite proportions; the full development of this law was made by Mr. Dalton, who has thus overturned the doctrine of indefinite affinity taught by the celebrated Berthollet, and has been successful in showing 'that the different compounds of the same principles do not pass into each other by imperceptible gradations, but proceed in successive proportions, each a multiple of the first.'

So far indeed as the fact of definite proportions goes, we ought to give the credit of discovery and detection to Richter of Berlin. Mr. Higgins too, in his Comparative View of the Phlogistic and Antiphlogistic Theory, published in the beginning of the year 1789, had plainly indicated the doctrine of multiple proportion, with respect to the successive compounds of the same constituents; but to Mr. Dalton is due the merit of having, to use the language of Dr. Wollaston, shown, 'that in all cases the simple elements of bodies are disposed to unite atom to atom singly;

or if either is in excess, it exceeds by a ratio to be expressed by some multiple of the number of its atoms.'

In the course of our researches, undertaken for the purpose of giving the reader a correct notion of this theory, we have found no statement more clear and explicit on the subject than that which we have met with in the last edition of Dr. Henry's Elements of Chemistry. We proceed, therefore, to extract largely from that section of this work which is devoted to the consideration of the atomic theory; the several objections that have been proposed to this theory, we purpose canvassing in the article CHEMISTRY, under which head many opportunities will necessarily occur of repeatedly adverting, both in direct and incidental ways, to the doctrine under notice. We shall here, however, take occasion to say, with the author from whom we are about to extract, that the instances in which the theory agrees with the results of analysis are too numerous to be considered as accidental coincidences; and no phenomena have hitherto been shown to be irreconcileable with the hypothesis. Its value and importance, if not contradicted by new facts, will be scarcely less felt as a guide to further investigations into the constitution of bodies, than as a test of the accuracy of our present knowledge; and the universality of its application to chemical phenomena, will be scarcely inferior to that of the law of gravitation, in explaining the facts of natural philosophy.

In the chemical combination of bodies with each other, says Dr. H. a few leading circumstances deserve to be remarked.

1st. Some bodies unite in all proportions; for example, water and sulphuric acid, or water and alcohol.

2dly. Other bodies combine in all proportions, as far as a certain point, beyond which, combination no longer takes place. Thus water will take up successive portions of common salt, until at length it becomes incapable of dissolving any more. In cases of this sort, as well as in those included under the first head, combination is weak and easily destroyed, and the qualities, which belonged to the components in their separate state, continue to be apparent in the compound.

3dly. There are many examples in which bodies unite in one proportion only; and in all such cases the proportion of the elements of a compound must be uniform for the species. Thus hydrogen and chlorine unite in no other proportions than those constituting muriatic acid, which, by weight, are 1 of the former to 36 of the latter. In cases of this sort, combination is generally energetic; and the characteristic qualities of the components are no longer observable in the compound.

4thly. Other bodies unite in several proportions; but these proportions are definite, and, in the intermediate ones, no combination ensues. Thus six parts by weight of charcoal combine with 8 of oxygen, or with 16, but not with intermediate quantities; 64 parts copper combine with 8 of oxygen, or with 16, and with those proportions only.

It is further remarkable, that when one body enters into combination with another, in several different proportions, the numbers indicating the greater proportions are exactly simple multiples of that denoting the smallest proportion. In other words, if the smallest proportion in which B combines with A, be denoted by 10, A may combine with twice 10 of B, or with three times 10, and so on: but with no intermediate quantities. There cannot be more striking instances of this law than those above mentioned, of the compounds of copper and charcoal with oxygen; in which the oxygen of the last compound may, in both cases, be observed to be a multiple of that of the first by the number 2. Examples, indeed, of this kind have, of late, so much increased in number, that the law of simple multiples, first discovered by Mr. Dalton, bids fair to become universal with respect at least to chemical compounds, the proportions of which are definite.

Facts of this kind are not only important in themselves, but also on accouut of the generalisations that have been deduced from them; for on them Mr. Dalton has founded what may be termed the atomic theory of the chemical constitution of bodies. Till this theory was proposed, we had no adequate explanation of the uniformity of the proportions of chemical compounds; or of the nature of the cause which renders combination, in other proportions, impossible. In this place I shall offer only a brief illustration of the theory; for in the course of the work I shall have occasion to apply it to the explanation of a variety of phenomena.

Though we appear, when we effect the chemical union of bodies, to operate on masses, yet it is consistent with the most rational view of the constitution of bodies to believe, that it is only between their ultimate particles, or atoms, that combination takes place. By the term atoms, it has been already stated, we are to understand the smallest parts of which bodies are composed. The infinite divisibility of matter, indeed, against which powerful arguments before existed, has been rendered still less probable by Dr. Wollaston, in his essay on the 'Finite Extent of the Atmosphere' (Phil. Trans. 1822); all the phenomena according with the supposition that the earth's atmosphere 'is of finite extent, limited by the weight of ultimate atoms of definite magnitude, no longer divisible by repulsion of their parts.' An atom, therefore, must be mechanically indivisible, and of course a fraction of an atom cannot exist, and is a contradiction in terms.

The atoms of all bodies probably consist of a solid corpuscle, forming a nucleus, and of an atmosphere of heat, by which that corpuscle is surrounded; for absolute contact is never supposed to take place between the atoms of bodies. The figure of a simple atom may readily, therefore, be conceived to be spherical. But in compound atoms, consisting of a single central atom, surrounded by other atoms of a different kind, it is obvious that the figure (contemplating the solid corpuscles only) cannot be spherical; yet if we include the atmosphere of heat, the figure of a compound atom may be spherical, or some shape approaching to a sphere. To determine the relative diameters of the atoms of bodies is a

problem of considerable difficulty. With respect to those of elastic fluids, it was some time ago effected by Mr. Dalton (New Syst. p. 226), and the same principle has been lately extended by Mr. Emmett to solid and liquid bodies. (Ann. Phil. N. S. ix. 110).

Taking for granted that combination takes place between the atoms of bodies only, Mr. Dalton has deduced, from the relative weights in which bodies unite, the relative weights of their ultimate particles, or atoms, which is all that we are likely to determine respecting them; for it is not probable that our knowledge will ever extend beyond the ratios of these weights. When only one combination of any two elementary bodies exists, he assumes, unless the contrary can be proved, that its elements are united atom to atom singly. Combinations of this sort he calls binary. But if several compounds can be obtained from the same elements, they combine, he supposes, in proportions, expressed by some simple multiple of the number of atoms. The following table exhibits a view of some of these combinations:

1 atom of A + 1 atom of B = 1 atom of C, binary.
1 atom of A + 2 atoms of B = 1 atom of D, ternary.
2 atoms of A + 1 atom of B = 1 atom of E, ternary.
1 atom of A + 3 atoms of B = 1 atom of F, quaternary.
3 atoms of A + 1 atom of B = 1 atom of G, quaternary.

A different classification of atoms has been proposed by Berzelius, viz. 1st, elementary atoms; 2dly, compound atoms. The compound atoms he divides again into three different species, viz. 1st, atoms formed of only two elementary substances united, or compound atoms of the first order: 2dly, atoms composed of more than two elementary substances; and these, as they are only found in organic bodies, or bodies obtained by the destruction of organic matter, he calls organic atoms: 3dly, atoms formed by the union of two or more compound atoms; as for example, the salts. These he calls compound atoms of the second order.

If elementary atoms of different kinds were of the same size, the greatest number of the atoms of A that could be combined with an atom of B would be 12; for this is the greatest number of spherical bodies that can be arranged in contact with a sphere of the same diameter. But this equality of size, though adopted by Berzelius, is not necessary to the hypothesis of Mr. Dalton, and is, indeed, supposed by him not to exist.

As an illustration of the mode in which the weight of the atoms of bodies is determined, let us suppose that any two elementary substances, A and B, form a binary compound; and that they have been proved experimentally to unite in the proportion, by weight, of 5 of the former to 4 of the latter; then, since, according to the hypothesis, they unite particle to particle, those numbers will express the relative weights of their atoms. But besides combining atom to atom singly, 1 atom of A may combine with 2 of B, or with 3, 4, &c. Or 1 atom of B may unite with 2 of A, or with 3, 4, &c. When such a series of compounds exists, the relative proportion of their elements ought necessarily, on analysis, to be proved to be 5 of A to 4 of B; or 5 to (4 + 4 =) 8; or 5 to (4 + 4 =) 12, &c.; or contrariwise, 4 of B to 5 of A; or 4 to (5 + 5 =) 10; or 4 to (5 + 5 + 5 =) 15. Between these there ought to be no intermediate compounds: and the existence of any such (as 5 of A to 6 of B, or 4 of B to 7½ of A) would, if clearly established, militate against the hypothesis.

To verify these numbers, it may be proper to examine the combinations of A and B with some third substance, for example, with C. Let us suppose that A and C form a binary compound, in which analysis discovers 5 parts of A and 3 of C. Then, if C and B are also capable of forming a binary compound, the relative proportion of its elements ought to be 4 of B to 3 of C; for these numbers denote the relative weights of their atoms. Now this is precisely the method by which Mr. Dalton has deduced the relative weights of oxygen, hydrogen, and nitrogen; the two first from the known composition of water, and the two last from the proportion of the elements of ammonia. Extending the comparison to a variety of other bodies, he has obtained a scale of the relative weights of their atoms.

In several instances, additional evidence is acquired of the accuracy of the weight, assigned to an element, by our obtaining the same number from the investigation of several of its compounds. For example:

1. In water, the hydrogen is to the oxygen as . 1 to 8.
2. In olefiant gas, the hydrogen is to the carbon as 1 to 6.
3. In carbonic oxide, the oxygen is to the carbon as 8 to 6.

Whether, therefore, we determine the weight of the atom of carbon, from the proportion in which it combines with hydrogen, or with oxygen, we arrive at the same number 6: an agreement which, as it occurs in various other instances, can scarcely be an accidental coincidence. In a similar manner, 8 is deducible, as representing the atom of oxygen, both from the combination of that base with hydrogen and with carbon; and 1 is inferred to be the relative weight of the atom of hydrogen from the two principal compounds into which it enters.

In selecting the body, which should be assumed as unity, Mr. Dalton has been induced to fix on hydrogen, because it is that body which unites with others in the smallest proportion. Thus, in water, we have 1 of hydrogen by weight to 8 of oxygen; in olefiant gas, 1 of hydrogen to 6 of carbon; and in sulphureted hydrogen, 1 of hydrogen to 16 of sulphur. Taking for granted that all these bodies are binary compounds, we have the following scale of numbers, expressive of the relative weights of the atoms of their elements:

Hydrogen	1
Oxygen	8
Carbon	6
Sulphur	16

Drs. Wollaston and Thomson, and Professor Berzelius, on the other hand, have assumed oxygen as the decimal unit (the first making it 10, the second 1, and the third 100), chiefly with a view to facilitate the estimation of its numerous compounds with other bodies. This, it appears to me, is to be regretted, even though the change may be in some respects for the better, because it is extremely desirable that chemical writers should employ an universal standard of comparison for the weights of the atoms of bodies. It is easy, however, to reduce their numbers to Mr. Dalton's by the rule of proportion. Thus as 8 (Mr. Dalton's number for oxygen, corrected by the latest experiments), is to 1 (his number for hydrogen), so is 10 (Dr. Wollaston's number for oxygen), to 1·25, the number for hydrogen.

Sir H. Davy has assumed, with Mr. Dalton, the atom of hydrogen as unity: but that philosopher, and Berzelius also, have modified the theory, by taking for granted that water is a compound of one proportion (atom) of oxygen, and two proportions (atoms) of hydrogen. This is founded on the fact, that two measures of hydrogen gas, and one of oxygen gas, are necessary to form water; and on the supposition, that equal measures of different gases contain equal numbers of atoms. And as, in water, the hydrogen is to the oxygen by weight as one to eight, two atoms or volumes of hydrogen must, on this hypothesis, weigh one, and one atom or volume of oxygen eight; or if we denote a single atom of hydrogen by one, we must express an atom of oxygen by sixteen. It is objectionable, however, to this modification of the atomic theory, that it contradicts a fundamental proposition of Mr. Dalton, the consistency of which with mechanical principles he has fully shown; namely, that that compound of any two elements, which is with most difficulty decomposed, must be presumed, unless the contrary can be proved, to be a binary one.

It is easy to determine, in the manner already explained, the relative weights of the atoms of two elementary bodies, which unite only in one proportion. But when one body unites, in different proportions, with another, it is necessary, in order to ascertain the weight of its atom, that we should know the smallest proportion in which the former combines with the latter. Thus, if we have a body A, 100 parts of which, by weight, combine with not less than thirty-two of oxygen, the relative weight of its atom will be to that of oxygen as 100 to thirty-two; or, reducing these numbers to their lowest terms, as twenty-five to eight; and the number twenty-five will, therefore, express the relative weight of the atom of A. But if, in the progress of science, it should be found, that 100 parts of A are capable of uniting with sixteen parts of oxygen, then the relative weight of the atom of A must be doubled; for as 100 is to sixteen, so is fifty to eight. This example will serve to explain the changes that have been sometimes made in the weights of the atoms of certain bodies; changes which, it may be observed, always consist either in the multiplication or division of the original weight by some simple number.

There are, it must be acknowledged, a few cases in which one body combines with another in different proportions; and yet the greater proportions are not multiples of the less, by any entire number. For example, we have two oxides of iron, the first of which consists of 100 iron and about thirty oxygen; the second of 100 iron and about forty-five oxygen. But the numbers thirty and forty-five are to each other as one to one and one-half. It will, however, render these numbers (one and one-half) consistent with the law of simple multiples, if we multiply each of them by two, which will change them to two and three; and if we suppose that there is an oxide of iron, though it has not yet been obtained experimentally, consisting of 100 iron and fifteen oxygen; for the multiplication of this last number by two and three, will then give us the known oxides of iron.

In some cases, the peroxide of iron for instance, where we have the apparent anomaly of one atom of one substance, united with one and one-half of another, it has been proposed by Dr. Thomson, Annals of Philosophy, p. 87, to remove the difficulty, by multiplying both numbers by two; and by assuming that, in such compounds, we have two atoms of the one combined with three atoms of the other. Such combinations, it is true, are exceptions to a law deduced by Berzelius; that in all inorganic compounds, one of the constituents is in the state of a single atom. But they are in no respect inconsistent with the views of Mr. Dalton; and are, indeed, expressly admitted by him to be compatible with his hypothesis, as well as confirmed by experience.

The reader is referred to an able account of the atomic theory, published by Mr. Ewart, in the sixth volume of Thompson's Annals. Under the word Equivalents too, in Ure's Dictionary of Chemistry, the subject will be found handled in a masterly manner.

On elective affinity, or the unequal, and selecting attraction of bodies, and on the causes which modify this action, both in a simple and complex manner, let the reader consult the article CHEMISTRY, in the present work.

ATTRACTIVES, or ATTRACTIVE REMEDIES, medicines which are to be externally applied, and which by their activity and warmth penetrate the pores, mix with, and rarefy, any obstructed matter, so as to render it fit for discharge, upon laying open the part by a caustic or incision.

ATTRAHENTS, in medicine, are the same with maturants, digestives, &c.

ATTRAP'. Fr. *attraper*, to catch, seize, apprehend, over-reach; used as we now use *entrap*. See TRAP.

> But Richard his brother being an expert and politique man, so craftilye conueyed, and so wisely ordered himselfe in his stormy tempest, that he was not *attrapped* eyther with net or snare. *Grafton*, v. 2.
>
> For, all his armour was like salvage weed
> With woody mosse bedight, and all his steed
> With oaken leaues *attrapt*, that seemed fit
> For saluage weight. *Spenser's Faerie Queene.*

ATTRIBUTE, ATTRIB'UTABLE, ATTRIBU'TION, ATTRIBU'TIVE, *n.* & *adj.* } Lat. *attribuo*, from *ad* and *tribuo*, to lay a thing to. To apportion, to give a proper share; to yield as due, to impute, to ascribe, assign, charge.

It (envy) is also the vilest affection, and the most depraved: for which cause it is the *attribute* of the Devil, who is called the envious man, that soweth tares amongst the wheat by night: as it always cometh to pass, that Envy worketh subtily, and in the dark, and to the prejudice of good things, such as is the wheat. *Lord Bacon's Essays.*

It takes
From our achievements, tho' perform'd at height,
The pith and marrow of our *attribute*. *Shakspeare.*

If speaking truth,
In this fine age, were not thought flattery;
Such *attribution* should the Douglas have,
As not a soldier of this season's stamp,
Should go so general current through the world.
Id.

We suffer him to persuade us we are as gods; and never suspect, these glorious *attributions* may be no more than flattery. *Decay of Piety.*

We *attribute* nothing to God, that hath any repugnancy or contradiction in it. Power and wisdom have no repugnancy in them. *Tillotson.*

Much of the origination of the Americans seems to be *attributable* to the migrations of the Seres. *Hale.*

Your vain poets after did mistake,
Who ev'ry *attribute* a god did make. *Dryden.*

All the perfections of God are called his *attributes*; for he cannot be without them. *Watts's Logick.*

I have observed a campania determine, contrary to appearances, by the caution and conduct of a general, which were *attributed* to his infirmities. *Temple.*

The imperfection of telescopes is *attributed* to spherical glasses; and mathematicians have propounded, to figure them by the conical sections. *Newton's Opticks.*

As to be perfectly just is an *attribute* of the Divine Nature; to be so, to the utmost of our abilities, is the glory of a man. *Addison.*

Perhaps it may appear upon examination that the most polite ages are the least virtuous. This may be *attributed* to the folly of admitting wit and learning as merit in themselves, without considering the application of them. *Steele.*

Beneficence, would the followers of Epicurus say, is all founded on weakness; and whatever be pretended the kindness between men and men, is by every man directed to himself. This, it must be confessed, is of a piece with that hopeful philosophy which having patched man up out of the four elements, *attributes* his being to chance. *Grove.*

ATTRIBUTE, in physics, a quality determining something to be after a certain manner. Thus understanding is an attribute of mind, and extension an attribute of body. That attribute which the mind conceives as the foundation of all the rest is called its essential attribute; thus extension is by some, and solidity by others, esteemed the essential attributes of body or matter.

ATTRIBUTES, in logic, the predicates of any subject, or what may be affirmed or denied of any thing.

ATTRIBUTES, in painting and sculpture, symbols added to several figures to intimate their particular office and character. Thus the eagle is an attribute of Jupiter; a peacock, of Juno; a caduceus, of Mercury; a club, of Hercules; and a palm, of Victory.

ATTRIBUTIVES, in grammar, are words which are significant of attributes; and thus include adjectives, verbs, and particles, which are attributes of substances; and adverbs, which denote the attributes only of attributes. Mr. Harris, who has introduced this distribution of words, denominates the former attributives of the first order, and the latter attributives of the second.

ATTRIT'E, ATTRI'TION. } Lat. *attero*, *attritum*, to rub against; *ad* and *tero*, to beat small, to wear out by rubbing. The act of rubbing used figuratively by theological writers.

Or, by collision of two bodies, grind
Their air *attrite* to fire. *Milton.*

From these premises it follows, that if the priest can absolve him that is *attrite*, he may pardon him who hath affections to sin still remaining; that is, one who fears hell, but does not love God. *Taylor's Polemical Discourses.*

Attrition is a trouble for sin, merely for fear of the punishment of it. *Tillotson.*

This vapour, ascending incessantly out of the abyss, and pervading the strata of gravel and the rest, decays the bones and vegetables lodged in those strata; this fluid, by its continual *attrition*, fretting the said bodies. *Woodward.*

The change of the aliment is effected, by *attrition* of the inward stomach, and dissolvent liquor, assisted with heat. *Arbuthnot.*

ATTROW, in botany, a name given by the people of Guinea to a plant which they use in cases of swellings, boiling the leaves in water, and using the decoction by way of a fomentation. It is a species of kali, and is called by Petiver, kali Guineense foliis polygoni, floribus verticilli in modum dispositis, from its leaves resembling the common knot-grass, and its flowers growing in rundles round the stalks.

ATTRUMMAPHOC, in botany, a name given by the people of Guinea to a shrub which they boil in water, and give the decoction in the venereal disease. The juice, when fresh pressed out, is snuffed up the nostrils to promote sneezing, and cure disorders of the head and eyes. It is a species of colutea. Dr. Herman calls it astragalus.

ATTUAL, a town of Arabia, in Tehama, in the province of Yemen. Long. 42° 10′ E., lat. 15° 57′ N.

ATTUDSJE, a town of Arabia, in Yemen, between Kusma and Sai-id. Long. 43° 25′ E., lat. 14° 40′ N.

ATTUIE, a fort of Arabia, in Tehama, seated on the coast of the Arabic Gulf. Long. 41° 40′ E., lat. 17° 37′ N.

ATTUNE. To tune, to set to a tune.

Airs, vernal airs,
Breathing the smell of field and grove, *attune*
The trembling leaves. *Milton.*

Th' ethereal glow that stimulates thy frame,
When all th' according powers harmonious move,
And wake to energy each social aim,
Attuned spontaneous to the will of Jove;
Be these, O man, the triumphs of thy soul.
Beattie. Judgment of Paris.

ATTURNATUS, in old law Latin, an attorney.

ATURÆ, a town of ancient Gaul, in the district of Novempopulana in Aquitania, on the Aturus; now called Aire. Long. 0° 16′ E., lat. 43° 42′ N.

ATURUS, a river of ancient Gaul in Aquitania, now called the Adour.

ATWAI'NE, ATWEE'N, AT'WIXT, ATWO. } In twain, in two. Gothic *twos*, two.

And Jhesus gaf out a great cry and diede. And the veyl of the temple was to rent *a two* from the higheste to bynethe. *Wiclif. Mark*, c. xv.

And with that word he gan sigh as sore,
Like as his heart rive would *atwaine*,
And held his peace, and spake no more.
Chaucer. The Complaint of the Black Knight.

Her loose long yellow locks (like golden wire,
Sprinkled with pearl, and perling flowers *atween*)
Do, like a golden mantle, her attire. *Spenser.*

With them an hideous storm of wind arose
With dreadful thunder, and lightning *atwixt*,
And an earthquake, as if it straight would loose,
The world's foundations from its centre fixt.
Id. Faerie Queene, b. ii.

ATWOOD (George), a celebrated author in mathematical and mechanical investigations, was born in the early part of the year 1746. He was educated at Westminster school, where he was admitted in 1759. Six years afterwards he was elected to Trinity college, Cambridge, and took his degree of Bachelor of Arts in 1769, with the rank of third wrangler. This distinction was amply sufficient to give him a claim to further advancement in his own college, on the list of which he stood foremost of his contemporaries; and, in due time, he obtained a fellowship, and was afterwards one of the tutors. He became Master of Arts in 1772; and, in 1776, was elected a Fellow of the Royal Society of London. The higher branches of the mathematics having previously made some important advances at Cambridge, under the auspices of Dr. Waring, Mr. Atwood delivered, for several successive years, a course of lectures in the observatory of Trinity college, which were very generally attended. In 1784, or soon afterwards, Mr. Pitt, who had become acquainted with his merits by attending his lectures, bestowed on him a patent office, which required but little of his attendance, in order to have a claim on the employment of his mathematical abilities in financial calculations. He died universally respected in 1807. The following, we believe, is a correct list of Mr. Atwood's publications:—1. A Description of Experiments to illustrate a Course of Lectures, 8vo. 1775, or 1776. 2. This work was reprinted with additions, under the title of An Analysis of a Course of Lectures on the Principles of Natural Philosophy, 8vo. Cambridge, 1784. 3. A General Theory for the Mensuration of the Angle subtended by two objects, of which one is observed by Rays after two Reflections from plane Surfaces, and the other by Rays coming directly to the Spectator's Eye. Phil. Trans. 1781, p. 395. 4. A Treatise on the Rectilinear Motion and Rotation of Bodies, with a Description of Original Experiments relative to the Subject, 8vo. Cambridge, 1784. 5. Investigations founded on the Theory of Motion, for determining the Times of Vibration of Watch Balances. Phil. Trans. 1794. p. 119. 6. The Construction and Analysis of Geometrical Propositions, determining the positions assumed by homogeneal bodies, which float freely, and at rest, on a fluid surface; also Determining the Stability of Ships, and of other Floating Bodies. Phil. Trans. 1796, p. 46. 7. A Disquisition on the Stability of Ships. Phil. Trans. 1798, p. 201. 8. A Review of the Statutes and Ordinances of Assize, which have been established in England from the 4th year of King John, 1202, to the 37th of his present Majesty, 4to. London, 1801. 9. A Dissertation on the Construction and Properties of Arches, 4to. London, 1801. 10. A Supplement to a Tract entitled a Treatise on the Construction and Properties of Arches, published in the year 1801; and containing Propositions for Determining the weights of the several sections which constitute an arch, inferred from the angles. Also containing a Demonstration of the angles of the several sections, when they are inferred from the weights thereof. To which is added, a Description of original experiments to verify and illustrate the principles in this treatise. With occasional remarks on the construction of an iron bridge of one arch, proposed to be erected over the river Thames at London. Part II. By the author of the first part, 4to. London, 1804. Dated 24th Nov. 1803. 11. A Treatise on Optics is mentioned by Nichols, as having been partly printed by Bowyer, in 1776, but never completed.

ATYCHIA, in entomology, a genus of insects of the order lepidoptera, and family zygænides. Its generic characters are: palpi rising considerably beyond the clypeus, anteriorly very hirsute with long hairs, wings short; posterior tibiæ with scales and elongated spurs.

ATYPOS; from *α* negative, and *τυπος*, form; irregular, a word used by the old writers in medicine, for such diseases as did not observe any regularity in their periods. Others have used the word for deformities in the limbs; and others for defects in the organs of speech.

ATYPUS, in entomology, a genus of the class arachnides, order acera, and family araneides. Its generic characters are: eyes on each side geminate; labium inserted under the base of the maxillæ, very small, quadrate; palpi placed at the base of the external dilatation of the maxillæ. The A. sulzeri has been found in this country by Dr. Leach, and inhabits turfy declivities, where it forms a deep cylindrical excavation, seven or eight inches long, in which it weaves a kind of funnel of white silk. The cocoon in which the eggs are deposited, is fixed at the bottom of this cavity by means of threads attached to each end.

ATYS, the son of Crœsus, king of Lydia, is reported to have been born tongue-tacked, and of consequence to have been dumb for many years; till observing one of Cyrus's soldiers going to kill his father, his passion suddenly broke the membrane that held his tongue, and he cried out 'Save the king!'

ATYS, in fabulous history, a celebrated shepherd of Phrygia, with whom Cybele, commonly called the mother of the gods, fell passionately in love. She gave him the care of her temple, at the same time making him vow he would always live in celibacy. He afterwards violated his promise by an amour with the nymph Sangaris, on which account the goddess brought upon him such a species of insanity which made him castrate himself with a sharp stone. The same operation was purposely performed by his sacerdotal successors, in the service of Cybele, that their vows of perpetual chastity might not be broken. This is the most generally received account; though, according to some writers, the cause of the fondness of the goddess for Atys, was his introducing her festivals into the greatest part of Asia Minor; and that she herself mutilated him. From Pausanias we learn that Atys was the son of a nymph of the Sangar, who became pregnant by placing the branch of an almond tree in her bosom. According to the passage (Achaic. c. 17), Jupiter having had an amorous dream, some of the impurity of the god dropt upon the earth, from which a monster of an human form was produced, with the parts of both sexes. This monster was named Agdistis, and was by the gods deprived of the characteristics of the male sex. The mutilated parts having been thrown on the ground, an almond tree sprung from them, a branch of which one of the daughters of the Sangar took and put in her bosom. As soon as Atys was born, he was exposed in a wood, where a she-goat nourished and preserved him. While in the wood, he was observed by Agdistis, who was captivated with his beauty; and when Atys was about to celebrate his nuptials with the king of Pessinus's daughter, Agdistis, jealous of a rival, infused into the king and his intended son-in-law such a spirit of madness as led them to attack and mutilate one another in the struggle. We farther learn from Ovid, that as Atys was going to lay violent hands upon himself, he was changed by Cybele into a pine-tree; and that from that time the pine-tree was held sacred to the mother of the gods. Divine honors were paid to Atys after his death, and temples erected to his memory, among which that at Dymæ was the most famous.

ATYS, a Trojan, who accompanied Æneas to Italy, and from whom it is supposed the family of the Atii at Rome descended.

AVA, or ANGWA, a city of the Birman empire, four miles west of Ummarapura, the metropolis. It is in lat. 21° 51′ N., and long. 95° 58′ E.; and was once the capital, but is now in ruins. Here are two large temples, one of which contains an image of Gaudma, (Gautama) or Budd'ha, twenty-four feet in height, and ten feet across the breast. There are also the reliques of many other temples in decay. For AVA, as an empire, see BIRMAN EMPIRE, its more usual and modern designation.

AVA-AVA, a plant, so called by the inhabitants of Otaheite, from the leaves of which they express an intoxicating juice. It is drank very freely by their chiefs, who vie with each other in drinking the greatest number of draughts, each draught being about a pint; but they keep it carefully from their women.

AUACH, or AVACH, the ancient name of Avoch.

AUAD, a mountainous district of Arabia, in the province of Yemen, near the city of Udden. Long. 44° 10′ E., lat. 14° 5′ N.

AVACHA, AWATSCHA, a considerable river of Kamschatka, falling, after a course of ninety miles from west to east, into a bay which bears the same name. Its mouth is rather narrow, but deep enough to admit ships of the greatest burden, and abounding in good anchorage; the best of which is the harbour of St. Peter and St. Paul. On the north side of the bay is the Volcano of Avacha, which constantly smokes, though it has had no considerable eruption since 1734, and that only lasted twenty-four hours. A small town called the Avachinski Ostrog was begun in 1740; it is in a tolerably flourishing state, and principally supported by the trade in beaver skins. The river Avacha has a course of about ninety miles.

AVADOUTAS, a sect of Indian Brahmins, who in austerity surpass all the rest. The other sects retain earthen vessels to hold their provisions, and a stick to lean on: but none of these are used by the Avadoutas; they only cover their nakedness with a piece of cloth, and some of them even lay that aside, and go stark naked, besmearing their bodies with cow-dung! When hungry, some go into houses, and, without speaking, hold out their hand; eating on the spot whatever is given them. Others retire to the sides of holy rivers, and there expect the peasants to bring them provisions, which they generally do very liberally.

AVAIL′, *v.* & *n.* } Fr. *valoir*, to be worth;
AVAIL′ABLE, } Lat. *valeo*, to be strong, to
AVAIL′ABLENESS. } be in health. To possess advantageous properties; to be of force or signification. The *a* is intensive.

All things subject to action, the will does so far incline unto; as reason judges them more *available* to our bliss. *Hooker.*

Laws human are *available* by consent. *Id.*

Drake put one of his men to death, having no authority nor commission *available*. *Raleigh.*

For all that else did come, were sure to fail;
Yet would he further none, but for *avail*. *Spenser.*

I charge thee,
As heav'n shall work in me for thine *avail*,
To tell me truly. *Shakspeare.*

We differ, from that supposition of the efficacy, or *availableness*, or suitableness, of these to the end. *Hale.*

Those excellent means God has bestowed on us, well employed, cannot but much *avail* us: but if otherwise perverted, they ruine and confound us. *Burton's Anatomy of Melancholy.*

Truth light upon this way, is of no more *avail* to us than errour. *Locke*

Nor can my strength *avail*; unless, by thee
Endu'd with force, I gain the victory. *Dryden.*

When real merit is wanting; it *avails* nothing, to have been encouraged by the great. *Pope's Preface to his Works*

Mean time he voyag'd, to explore the will
Of Jove, on high Dodona's holy hill;
What means might best his safe return *avail*.
Pope.

Ah! what *avails* the lore of Rome and Greece,
All that art, fortune, enterprise can bring,
If envy, scorn, remorse, or pride, the bosom wring.
Beattie.

AVAIL OF MARRIAGE, in ancient Scot's law, that casuality in inward-holding, by which the superior was entitled to a certain sum from his vassal, upon his attaining the age of puberty, or fourteen years, as the avail and value of his tocher.

AVAL, or BAHHREIN, the largest of the Bahhrein islands in the gulf of Persia. It is about thirty miles in length, and twelve wide, where it is broadest. Besides the fortified town of Bahhrein, it contains about sixty poor villages. Long. 48° 4′ E., lat. 26° 36′ N.

AVALANCHES, prodigious masses of snow and ice that roll down the mountains in Savoy, particularly mount Blanc, to the extreme danger of travellers.

'Oft rushing sudden from the loaded cliffs,
From steep to steep, loud thund'ring down they come,
A wintry waste in dire commotion all;
And herds and flocks, and travellers and swains,
And sometimes whole brigades of marching troops,
Or hamlets sleeping in the dead of night,
Are deep beneath the smothering ruin hurl'd.'

Some of them are 150 or 200 feet diameter; being fragments of the ice-rocks which break by their own weight from the tops of the precipices. See BLANC, MOUNT.

AVALON, or AVALLON, the chief town of an arrondissement in the department of the Yonne in France, situated, with its strong castle, on the river Cousin. Population 4200; that of the arrondissement is 42,800. It is twenty leagues west of Dijon.

AVALON, or AVOLON, a peninsula of Newfoundland.

AVALON, or AVALONIA, the ancient name of Glastonbury, where king Arthur was buried. See ARTHUR, and GLASTONBURY.

AVALOS (Ferdinand Francis d'), marquis of Pescara, was born in the kingdom of Naples. He entered into the service of Charles V. and accompanied the army to the battle of Ravenna, where he was made prisoner. During his captivity he amused himself in writing a Dialogue on Love, and dedicated it to his wife. After his release he again entered into the emperor's service, and was present at the taking of Milan, where he died in 1525, aged thirty-six.

AVALOS (Alphonso d'), marquis del Vasto, was born in 1502. He was a near relation of the above; and was likewise a zealous officer in the armies of Charles V. He died in 1546.

AVANIA, in the Turkish legislature, a fine for crimes, and on deaths, paid to the governor of the place. In the places wherein several nations live together under a Turkish governor, he takes this profitable method of punishing all crimes among the Christians or Jews, unless it be the murder of a Turk.

AVANT, the front of an army. See VAN.

AVANT is defined by Mr. Chalmers, a French preposition, signifying before, or any priority in respect of time or place; sometimes used in composition, in our language, but more usually contracted, and wrote vaunt, vant, or van.

AVANT FOSSE, &c. See VAN FOSSE.

AVANT-GUARD, avantgarde, French. The van; the first body of an army.—The horsemen might issue forth without disturbance of the foot, and the avant-guard without shuffling with the battail or arriere.—*Haward.*

AVANT MURE, an outward wall.

AVANT PEACH, a peach early ripe.

AVANT WARD, the van of an army.

AVANTE, among ancient medical authors, a name given to a disease, seeming, from their accounts of it to be the same with hypochondriasis.

AVANTIO (John Mario), an Italian lawyer of great eminence, born in 1564. He displayed his abilities first at Ferrara, and afterwards at Padua; at which last place he died in 1622. Besides several other pieces, he wrote an ecclesiastical history, from the commencement of the reformation.

AVANTIO (Charles), a celebrated physician, was a son of the above. He was author of a commentary on the work of Bapt. Fiera, printed at Padua, in 1649.

AVANTURINE, in mineralogy, a species of common quartz, containing a number of minute fissures, and sometimes crystals of mica. These lie in parallel, or nearly parallel planes: so that when the stone is cut into a double convex figure, the imaginary plane of junction of the two spherical segments being parallel to the planes in which the fissures lie, a play of light is produced on the surface of the stone. The most beautiful varieties have been found in Spain.

AVARA, a river of Gallia Celtica, mentioned by Cæsar, in the county of Brituriges, now called Aruon.

AVARES, one of the predatory tribes in the north of Asia Minor, who made great ravages in the eastern empire. Having penetrated the Sclavonian and Greek territories, they first appeared on the banks of the Danube, A. D. 560, and established themselves at Sirmium, and in Upper Hungary. Their riches, and their alliance with Thassilo, chief of the Baii, alarmed Charlemagne, who, in A. D. 803, attacked them in person, and drove them into Corinthia. They have been conjectured to be the Aorsi, or Adorsi, of Strabo.

There is still on the banks of the Kóijú, in Lezgistán, and on the eastern side of Mount Caucasus, a tribe called Aor or Avar, whose language is a peculiar one, but has an affinity with several others used in the neighbouring districts. There is also a city of this name consisting of about 600 houses, the residence of a hereditary prince or chief. He has considerable influence; and, on a late occasion, a neighbouring potentate purchased his sister in marriage for £25,000. In his palace, the only one with glass windows in eastern Caucasus, there is a large hall, well provided with provisions, constantly open to all strangers. In the city of Avar fine shawls are manufactured from the wool of Caucasian sheep; one of which, an ell and a half long, may be drawn through a ring. These people are warlike and courageous; and their chief, the Avar Khán, is much courted by the Russians. He was raised to the rank of a lieutenant-general, with a pension of 10,000 silver rubles (£2000)

in 1807. He can bring 20,000 men into the field, and his dependant khan 10,000 more.

AVARIA, in the Turkish and Persian dominions, a sum of money exacted from the Christians or Europeans, to be quit of some false accusation framed on purpose.

AV'ARICE, AVARIC'IOUS, AVARIC'IOUSLY, AVARIC'IOUSNESS, AV'AROUS. } Lat. *avaritia*, *avarus*; from *avare*, to covet, to desire greedily. Applied to one whose ruling passion is the acquisition of wealth for its own sake.

Now good men! God forgive you your trespass,
And ware you fro the sinne of *avarice*,
Min holy pardon may you all warice;
So that ye offre nobles or starlinges,
Or elles silver broches, spones, ringes.
Chaucer. Pardeneres Tale.

But father I herde you say
How the *aurous* hath yet some way
Whereof he maie be glad. For hee
Maie, whan hym list, his tresure see,
And grope, and fele it all aboute.
Gower. Con. A. book v.

This speech has been condemned as *avaricious*; and Eustathius judges it to be spoken artfully.
Broome on the Odyssey.

Luxurious, *avaricious*, false, deceitful.
Shaksp. Macbeth.

There grows
In my most ill-compos'd affection, such
A stanchless *avarice*; that, were I king,
I should cut off the nobles for their lands.
Shakspeare.

This *avarice* of praise in times to come;
Those long inscriptions, crowded on the tomb.
Dryden.

Nor love his peace of mind destroys,
Nor wicked *avarice* of wealth. *Id.*

Avarice is insatiable; and so he went, still pushing on for more. *L'Estrange.*

Though the apprehensions of the aged may justify a cautious frugality, they can by no means excuse a sordid *avarice*. *Blair.*

An insatiable thirst of riches renders Pygmalion every day more wretched and detestable. In his dominions it is a crime to be wealthy: *avarice* makes him jealous, suspicious, and cruel: he persecutes the rich, and he dreads the poor.
Hawkesworth's Telemachus.

AVARICE, of all the various passions by which mankind is governed, is the least to be accounted for, as it precludes its subject from all pleasure except that of hoarding. The ambitious man, the gamester, or even the prodigal, have all something to plead, by way of palliative for their inordinate affections to their respective objects and pursuits; but the subject of avarice gratifies his passion at the expense of every conveniency, indulgence, or even necessary of life. And though convinced that money is only the means of enjoyment, not the end, and that it is only valuable as far as it is useful for attaining that end, yet such is his infatuation, that the images of his bags and shining metal, with all the annexed ideas of property, enjoyment, security against want, independence, &c. prevent him from using the means, and make him appear without property, in misery, in want, and dependent. No passion is more opposite to the hope of a future life than avarice.

AVARICUM, an ancient town of the Bituriges in Gallia Celtica, situated on the Avara, in a very fertile soil; now called Bourges. Long, 2° 28′ E., lat. 47° 5′ N.

AVAROMO TEMO, in botany, a siliquose tree, which grows in the Brasils. The bark is externally of a cineritious, and internally of a deep red color, and is the only part of the plant used for medicinal purposes, though some indeed use the leaves. But the bark, which is bitter, whether reduced to a powder, or boiled and used as a fomentation, cures inveterate ulcers, and, it is said, has been found to cure even cancers. It is also used as a corroborant, on account of its astringent quality, by way of bath.

AVAST, from basta, Ital. it is enough: enough; cease. A word used among seamen. It always precedes some orders, or some conversation, and answers the same purpose as—harkye, list, attend, take heed, hold. Like the Ital. avacci, I think it means—be attentive, be on the watch, i. e. awake.—Tooke, ii. 362.

AVATAR, in the Hindoo mythology, an incarnation of the Deity. Ten of these are incarnations of Vishnú, the supreme God, in his character of preserver. Four are the subjects of Puranas, or sacred poems. Nine of them are believed to be past, and the tenth is yet to come.

The first is the Matsya Avatár, or descent of the deity in the form of a fish. Of what species this fish was, the sages have not determined; but Vishnús' object was the recovery of the holy Vedas from the ocean, in which they remained after one of the periodical dissolutions of the universe.

The second is the Kachyapa, or Kúrma Avatár, in which the same god appeared in the form of a tortoise, in order to sustain and give stability to the newly created earth.

The third is the Varáha Avatár, when he appeared in the shape of a boar, and plunging into the waters which had overwhelmed the earth, in one of its periodical destructions, fixed his tusks in it and drew it up.

The fourth is the Nara-sing'ha, or man-lion Avatár. Kas'yapa, one of the descendants of Daksha, the first created man, had two wives, whose characters, to judge from their children, were very different, for one produced the gods, and the other the giants. Among the latter were two Hiranyáksha and Hiranyakas'ipu, who it seems stole a march on Brahmà, and almost compelled him, by dint of their austerities, to grant what he had no mind to give them—immortality. Their strength was already quite terrific, so that to give it an endless duration was more than the god thought prudent. However, he could not resist the claim of austerities practised for some thousands of years, and, therefore, to release himself from this dilemma, he engaged that no ordinary being should destroy them; and that they should not die either by day or by night, in earth or in heaven, by fire, by water, or by the sword. Satisfied with this assurance, they immediately began to show how well they understood the value of their powers, they conquered the whole earth, and then dethroned Indra, king of heaven. He immediately carried his complaint to Brahmà, who very coolly answered that he could take no part

against those upon whom he had bestowed a blessing; but that perhaps Vishnú would. This latter deity kindly undertook to settle the business, and restore Indra to his kingdom. To effect that purpose he assumed a mixed form, half man and half lion; he concealed himself in a column in Hiranya-kas'ipu's palace, and, when that gigantic monster struck the column in a fit of rage and profaneness, out started Nerasing'ha, seized the giant by his thigh, and ripped him up in an instant. This was certainly the action neither of fire, water, nor the sword; it was certainly not done by any ordinary being; neither was it done by day or night, for it was in the evening, and it was also under the eaves, and consequently between earth and heaven. Thus was Brahma's promise fulfilled. How the other worthy Hiranyáksha, or Gold-eye, was killed we are not told; but Vishnú consoled Pralháda, Hyranya-kas'ipu's pious son, by assuring him that his father would ascend to heaven.

The fifth, or Vámana incarnation, was occasioned by the same family. Pralhád'ha had a very audacious son, named Bali, who daringly made offerings to himself, and performed the as'wa-méd'ha, or sacrifice of a horse so often, that scarcely any thing could be refused to him, and he demanded the throne of heaven. Vishnú, having been applied to for relief against this troublesome giant, conveyed himself into the body of Aditi, the wife of Kas'ypa, the grandfather of the giants, and was born a dwarf—Vámana. His diminutive size charmed the tyrant Bali, who, to gratify him, promised to give whatever he should ask. He modestly demanded as much land as could be measured by three steps: and, placing one foot on earth and another on heaven, out started a third from his belly, for which he demanded a resting-place; the king's head was the only one that could be found, and to make up matters with the god, whose power was now indisputable, Bali consented to go down to Patala, or hell, on a promise of Vishnú's protection. Thus did a dwarf repress the turbulence of a giant.

In the sixth, or Parasú-Ramá Avatár, Vishnú came into the world, as the son of Jamadagni, a descendant of the sage B'hrigu, in order to chastise the military caste, or Kshatriyas, whose insolence and disorder had become insufferable. One of them, a king, named Arjuna, took a fancy to a marvellous cow, named Káma-d'hénu, the property of Jamadagni, and attacking her possessor with a large army, routed and slew him. Ràma, the son of the luckess sage, determined to avenge his father's death, and going to Kailása (Olympus), knocked down Siva's porters, who refused admittance to him, presented himself to the god, and received from him a paras'u, or weapon with which he slew Arjuna. These incarnations all took place in the Satya Yuga, or Golden Age: the remainder are more modern.

The seventh, or Ráma-chandra Avatár, was Vishnú's descent for the purpose of subduing another giant Ravana, who reigned in Lankà, or Ceylon, and carried off Sità, the wife of Ramá, in his absence from home. Their contests and the final victory of Ráma are the subject of the celebrated epic poem called the Ramáyana.

Pralamba, and other troublesome giants, who it appears, were not confined to the golden age of the Hindoo mythology, made an eighth incarnation requisite, and Vishnú again descended in the form of Bala-Ráma. This took place in the Dwápar, or Brazen Age, and brings us nearer to the period of something like genuine history.

Budd'ha, the ninth, overcame the giants, his adversaries, by a very singular artifice; he produced, by his preaching, an universal scepticism, so that the gods, no longer compelled to grant prayers, had no difficulty in ridding the world of its scourges, these all-powerful giants.

The Kalkì, or tenth Avatár, is yet to come! He will be the son of a Bráhman, and be born in the city of Samb'hala at the close of the Kali Yuga, or Iron age. He will appear, say the Bráhmans, mounted, like a crowned conqueror, on a white steed, with a scymitar blazing like a comet, to mow down all his foes. Plates of the incarnations of Vishnú from Indian drawings, were first given by Athanasius Kircher, in his China Illustrata, in 1667. They are to be found also in Baldæus (Churchill's collection), whence they were copied in Mr. Maurice's Indian Antiquities: which see.—*Ward's View of Hindoo Literature, &c.*

AVAUNCHERS, among hunters, the second branches of a deer's horns.

AVAUNT. Fr. *avant*, a word of abhorrence, by which any one is driven away.

> O, he is bold, and blushes not at death;
> *Avaunt*, thou hateful villain, get thee gone!
>
> *Shakspeare.*

AVAUX, a town of Champagne, in France, with 1500 inhabitants, belonging to the department of the Ardennes, arrondissement of Rhetel It is seated on the Aisne, not far from Rheims, and formerly belonged to the family of de Memes, from whom sprung the celebrated diplomatist Claudius comte d'Avaux, ambassador of France at the treaty of Westphalia.

AUB, or Auw, a baliwick and town of Franconia, on the Gollach, between Uffenheim and Ochsenfurt. It had, in 1804, about 160 houses, and 1120 inhabitants, and belonged to the district of Rottingen, in the principality of Wurtzburg, but was united to Bavaria in 1815. The hospital is well endowed. It is seventeen miles south of Wurtzburg. Long. 10° 10′ E., lat. 49° 37′ N.

AUBAINE, in the ci-devant customs of France, was a right vested in the king of being heir to all foreigners that died within his dominions. By this right the French king claimed the whole inheritance of foreigners, notwithstanding any testament the deceased could make. But an ambassador was not subjected to it; and the Swiss, Savoyards, Scots, and Portuguese, were also exempted.

AUBE, a department of France, so named from the river bounded on the north by that of Marne; on the east by Upper Marne; on the south by those of the Cote d'Or and Yonne; and on the west by that of Seine and Marne. Its chief town is Troyes.

Aube, a river of France, which rises in the department of Upper Marne, and, running through

that of Aube, passes by Bar-sur-Aube and Arcis, and falls into the Seine, near Nogent.

AUBENAS, a town of France, in the Lower Vivarais, in Languedoc, now included in the department of the Ardeche, arrondissement of Privas. It was for some time the capital of an arrondissement, but is now only the head of a canton. The population is about 3315. Aubenas is a manufacturing place of some consequence, containing silk-mills and extensive cloth-works. The twisted silk, called organsin, is wrought here by a mill, constructed by the ingenious Vaucanson; the average quantity manufactured in a year being 550 cwt. Here also are made handkerchiefs, neckcloths, chintzs, and stuffs, partly consumed in the country, and partly exported to the Levant. The raw material is brought chiefly from Spain. The cloths dyed here are also in great repute. In the neighbourhood is a famous medicinal spring, and mines of coal. It lies on the Ardeche, five leagues S. W. of Privas, and 135 S. S. E. of Paris.

AUBERT (Peter), an eminent French lawyer, born at Lyons in 1642. He appeared very early in the world as an author, by the publication of a romance, called Rétour d'Isle d'Amour. He filled several important stations in the city of Lyons, and established an extensive public library. In 1710 he published two volumes of Cases, and, in 1723, a new edition of Richelet's Dictionary, three volumes, folio.

AUBERTIN (Edmund), a French Protestant divine,—was born in 1595, and in 1631 was chosen minister of the reformed church at Paris. In 1633 he published a work on the Eucharist of the ancient church, which was attacked by Arnauld and other Catholic writers. He died at Paris in 1652.

AUBERY (Anthony), a French lawyer, and historical writer, born in 1617. He was very much given to study, taking no pleasure in the bustle of public business, but preferring a retired life. The following are the principal fruits of his labours: 1. The History of the Cardinals, five volumes, 4to. 1642. 2. Memoirs of the Cardinal de Richelieu, two volumes, folio, 1660; in which the character of the cardinal is more respected than truth, which is sometimes sacrificed to his praise. 3. The History of Cardinal Mazarin, four volumes, 12mo. 1751. 4. On the Pre-eminence of the kings of France, 4to. 1649. 5. A Treatise on the Pretensions of the king of France to the Empire, 4to. 1667. He died in 1695.

Aubery (John), a French physician of the seventeenth century. He was author of an Apology for Physic, in Latin, 8vo. printed at Paris in 1608, and an Antidote to Love, in French, 12mo. 1559.

Aubery (Louis de Maurier), a French writer. In 1682 he published Memoirs for a History of Holland, two volumes, 12mo. He died in 1687, leaving Memoirs of Hamburgh, Lubeck, Holstein, Denmark, and Sweden, which were published at Amsterdam, in 1737.

AUBESPINE (Claude de l'), baron of Chateau-Neuf. He was a descendant of a noble family at Chartrain, and filled the office of secretary of state under several of the kings of France. He died in 1567.

Aubespine (Charles de l'), marquis of Chateau-Neuf. He was chancellor of France, but was imprisoned ten years. After his liberation he was taken into favor by Henry IV. He died in 1653.

Aubespine (Gabriel de l'), was of the same family with the above. He became bishop of Orleans, in which station he showed himself a man of great learning. He died in 1630, aged fifty-two.

Aubespine (Magdalen de l'), a celebrated French lady. She was the wife of de Neuville, seigneur de Villeroi, and author of several excellent pieces in prose and verse. She died in 1596.

AUBIER, or Aubour, the French name for that soft whitish substance which lies round a tree between the bark and the solid wood. Mr. Barkley thinks it performs the office of veins. It may be considered as a third bark, whose fibres are less compact than those of the others, and is properly the fat of the tree. It hardens gradually, and becomes imperceptibly a part of the woody substance. There are few trees without some aubier, which is more or less thick according to the situation in which the trees are planted, for the more they are exposed to the rays of the sun the less aubier will be found in them. In the oak it is seldom above an inch, or an inch and a half thick. When a tree is cut down, or dies in the ground, the aubier remains always of the same consistency without being turned into solid wood. It is liable to rot, and therefore merchants ought to take care that as little aubier is left on their wood as possible.

AUBIGNAN, a town of France, in the Venaissin, with the title of marquisate, and 1320 inhabitants, now included in the department of Vaucluse, arrondissement of Orange. It is famed for its oil. Five leagues and a half N. E. from Avignon.

AUBIGNE (D' Theodore Agrippa), an illustrious French author, was born in 1550. He made such an early progress in letters, that he is said to have translated Plato's Crito, from the Greek into French, when he was only eight years old. His father dying when he was thirteen, he attached himself to the cause of Henry IV. under whom he fought, and who made him gentleman of his bedchamber. He soon became a favorite with Henry, who raised him to several other high offices; but he at length lost his favor, partly by refusing to comply with his passions, and partly by a democratic kind of inflexibility. Quitting France, he took refuge in Geneva, where he was highly honored, and spent the remainder of his days in writing different works. His chief production is his Histoire Universelle, from 1550 to 1601; with a short Account of the Death of Henry IV. three volumes, folio. The first volume was scarcely published when the parliament of Paris condemned it to be burnt, as 'a work wherein kings are treated not only with little respect, but even outraged!' He died at Geneva, in 1630, aged eighty.

Aubigne, or Aubigny, a small town of France, in the department of Cher, seated on the Nerre, in a fine plain, twenty-four miles north of Bourges

It is surrounded with strong walls, wide ditches, and high counterscarps. The castle is within the town, and is very handsome. Long. 2° 28′ E., lat. 47° 31′ N.

Aubigny, a ci-devant dukedom in France, belonging to the duke of Richmond in England, as descendant of the duchess of Portland, the favorite mistress of Charles II., at whose solicitation it was given her. It was confirmed to the duke of Richmond and registered in the Parliament of Paris in 1777, but abolished with other French titles in 1790.

AUBIN, in horsemanship, a broken kind of gait, between an amble and a gallop,—accounted a defect.

Aubin (St.), sometimes called Hodiere, a market town, situated on a bay of the same name, in the island of Jersey, three miles from St. Hillier's. The port is defended by a pier, which runs out into the sea, in the same manner as that at Guernsey. The town is well built, and much frequented by merchants. The parish church being at some distance, there is here a chapel of ease. Market on Mondays. Latitude 49° 7′, N. long. 2° 15′ W.

AUBLETIA, in botany, a genus of the class and order polyandria monogynia. The essential characters are, calyx five-leaved, corolla, five petalled, capsule many celled, echinate, with many seeds in each cell. There are three species, all trees, and natives of South America.

AUBONNE, a district or bailiage of Switzerland, in the canton of Bern, and territory of Vaud, which contains several villages, mostly at the foot of mount Jura.

Aubonne, a rapid river of Switzerland, which runs through the above district, and falls into the lake of Geneva. In mount Jura there is a very deep cave, which is a natural and perpetual ice-house. At the bottom is heard a great noise, like that of a subterraneous river, which is supposed to be that of the Aubonne, because it first appears with several sources, about a hundred paces from the foot of that mountain.

Aubonne, a town of Switzerland, in the above district, situated near the river, seven miles north of the lake of Geneva, upon an eminence which has a gentle declivity, at the foot of which runs the river, with an impetuous torrent. It is built in the form of an amphitheatre; on the upper part of which stands a castle with a court, and a portico supported by pillars of a single stone each. The castle stands high, and there is a most delightful prospect, not only of the town and neighbouring fields, but of the whole lake of Geneva and the land that surrounds it. Aubonne is situated eighteen miles W. of Lausanne. Long. 6° 15′ E., lat. 46° 30′ N.

AUBREY (John), F. R. S. a famous English antiquary, born at Eston-Piers, in Wiltshire, in 1626, and educated at Trinity college, Oxford. In 1646 he was entered of the middle Temple, but quitted the study of the law on account of some embarrassments in his private affairs. He contracted an intimacy with several learned men, and was one of the first members of the Royal Society. He made the history and antiquities of England his peculiar study; and contributed considerable assistance to the famous Monasticon Anglicanum. He succeeded to several good estates, but law-suits and other misfortunes consumed them all, so that he was reduced to absolute want. In this extremity he found a valuable benefactress in lady Long, of Dracot, who gave him an apartment in her house, and supported him till his death, which happened about A. D. 1700. He was a good Latin poet, and an excellent naturalist, but somewhat credulous, and tinctured with superstition. He wrote, 1. Miscellanies. 2. A Perambulation of the county of Surry, in five volumes, 8vo. 3. The Life of Mr. Hobbes of Malmsbury. 4. Monumenta Britannica, or a Discourse concerning Stonehenge, and Roll-Rich Stones in Oxfordshire. 5. Architectonica Sacra. 6. The Natural History of Wiltshire. 7. Universal Education, and several other works still in MS.

AUBRIOT (Hugo), a French reformer, from whom the appellation Hugonots. He was treasurer of the finances, and mayor of Paris; and under his magistracy the Bastile was built, in 1369. Soon after he was accused of heresy, and sentenced to confinement between two walls, from which the Maillotins, a set of insurgents, released him, in 1381. He however left them, and retired into Burgundy, where he died the following year.

AUBUSSON (Peter d'), grand master of the knights of Rhodes, was born in La Marche, in 1423. Having entered into the order of St. John of Jerusalem, he was elected grand master, in 1476; and, in 1480, when the Turks made an attack upon the island, it was by his vigorous conduct they were repulsed. He obtained a cardinal's hat by very dishonorable means—the delivering up to the pope prince Zizim, brother of Bajazet, who had taken refuge in Rhodes, from the vengeance of the sultan. He died in 1503.

AU'BURN. Sometimes written Abron, which it is suggested may be the past participle of *to bren*, or *brin*, to burn; *quasi*, browned. Others contend for *alburn*, from whiteness, regarding it as a color inclining to white.

His faire *auberne* haire had nothing upon it but white ribbin. *Pembroke's Arcadia.*

Not wanton white, but such a manly colour
Next to an *abron*, tough, and nimble set;
Which shows an active soul.
Beaumont and Fletcher. The Two Noble Kinsmen.

These curious locks so aptly twin'd,
Whose every hair a soul doth bind,
Will change their *auburn* hue and grow
White and cold as winter snow.
Carew. Persuasions to Love.

Close to her side, in radiant arms, a youth,
Who like the brother of the Graces moves,
His head uncas'd, discovers *auburn* locks
Curl'd thick, not flowing.
Glover's Leonidas, book ii.

And not a year but pilfers as he goes
Some youthful grace that age would gladly keep,
A tooth, or *auburn* lock. *Cowper's Poems.*

AUBUSSON, a small town of France, in the department of Creuse, thirty-seven miles north-east of Limoges. Its situation is very irregular, on the river Creuse, in a bottom surrounded with rocks and mountains.

AUCAGUREL, the capital of the kingdom of Adel, in Africa, seated on a mountain. Long. 44° 25′ E., lat. 9° 10′ N.

AUCH, a town of France, in the department of the Gers. It has a beautiful cathedral, and is sixteen leagues west of Toulouse.

Auch, or Ach, in the Gaelic, signifies a field of some extent, generally arable and horizontal. In composition, Auchen, Auchin, or, as it ought rather to be spelt, Auch-an, signifies the field of, the particle an, in Gaelic, being always the sign of the genitive, when placed between two substantives; although when prefixed to one substantive, it implies only the definite article the.

AUCHABER, or Achaber, a hill in Aberdeenshire, in the parish of Forgue, on the south-east declivity, of which there are the remains of an elegant circular Roman redoubt.

AUCHINLECK, in Gaelic, a field of rock; a parish of Scotland, in Ayrshire, eighteen miles in length, and two in breadth: memorable for being the birth-place, as well as the property, of the late James Boswell, Esq. The soil, except upon the rocks and banks of the rivers, is poor; but this is compensated by its abounding in excellent coals, free-stone, a black stone, which is fire-proof, used for building ovens, and other minerals. It has also a lead mine, which some think rather a silver mine, but it has never been wrought; and two mineral wells. It has the ruins of an ancient castle, of whose age there is no tradition; and is ornamented with an elegant mansion-house, built by the late lord Auchinleck.

AUCHINLILY Linn Spout, a cataract in the parish of Fintry, in Stirlingshire, over which the Carron rushes in its course from Carron bog to the carse of Falkirk.

AUCHLOSSEN, Loch or, a lake in the parish of Lumphanan, in Aberdeenshire, nearly a mile in length, and above half a mile broad at the south end. It produces eels and pikes; some of the latter six feet long, and twenty-five pounds in weight. It often overflows its banks in summer.

AUCHMUTY (Sir Samuel), lieutenant-general, G. C. B. and colonel of the 78th regiment of foot, entered the army in 1776, as a volunteer in the 45th regiment; and served with Sir W. Howe in North America, the three following campaigns. In 1783 he held a company in the 75th foot in the East Indies, and was present at the first siege of Seringapatam, under lord Cornwallis. In 1801 he was appointed adjutant-general to the expedition against Egypt. He was ordered out to South America in 1806, where he assumed the command of the troops, with the rank of brigadier-general; and in February, 1807, carried Monte Video by assault, after a most determined resistance; for which services he received the thanks of parliament. In 1809 he was appointed commander-in-chief of the Carnatic; and in 1811 reduced the settlements of Java and Batavia under the dominion of Great Britain, for which he again obtained the thanks of both houses. On his return to Europe, Sir Samuel succeeded Sir D. Baird, as chief of the staff in Ireland. His death, occasioned by apoplexy, took place August 11, 1822, in the sixty-sixth year of his age. His remains, after lying in state at Kilmainham hospital, were interred in the royal vault in Christ Church Cathedral, Dublin.

AUCHTER, a Gaelic word, signifying high, or upper, which in composition makes part of many ancient names of places.

AUCHTERMUCHTY, a town of Scotland, in Fifeshire, which was constituted a royal burgh by James IV. confirmed by James VI. and still enjoys all the privileges, except that of electing a representative in parliament. It has three bailies, fourteen counsellors, a treasurer and clerk; and four fairs, viz. on 21st August, first Tuesday of November and April, and 13th July, which last is one of the most considerable in Fife, for horses, cattle, &c. The church was built in 1780, and an elegant manse in 1792. The chief manufacture is white and brown linens.

AUCKLAND, Bishop, a market town in the county palatine of Durham, with a population of near 2000. Here is the palace of the Bishop of Durham, began in 1283, by bishop Beck, and is a noble, though irregular, structure. It is 257 miles north-west of London, and ten miles and a half south-west of Durham.

Auckland (William Eden, lord), was the third son of Sir Robert Eden, bart. of West Auckland, in the county of Durham. Educated at Eton and Oxford, he was called to the bar by the society of the Middle Temple in 1769, and accompanied the earl of Carlisle, in 1778, to negociate terms with the revolted colonies of America. He was chief secretary during the same nobleman's viceroyalty in Ireland. In 1785 he was sent ambassador extraordinary to negociate a commercial treaty with France; and in 1788 performed a similar service with Spain. In 1789 he concluded, at the Hague, a treaty between Great Britain, the emperor, and the king of Prussia, in settlement of the affairs of the Netherlands; and the same year he was created baron Auckland, of the kingdom of Ireland. In 1793 he was advanced to the English peerage by the same title. Lord Auckland was considered an able diplomatist, and is the author of the following works: The Principles of Penal Law, 8vo. 1771; Five Letters to the earl of Carlisle, 8vo.; On the Population of England, in Answer to Dr. Price, 8vo.; View of the Treaty of Commerce with France, 8vo.; The History of New Holland, 8vo.; Remarks on the War, 8vo. 1795; and various speeches in the House of Lords. He died in 1814.

AUCTION, Auc'tionary, Auc'tioneer. } Lat. *augeo*, *auctum*. Gr. Αὐξω, increase; *auctio*, an increasing. Auction is a selling to those who will give the highest price for the article offered. After successive biddings at a price constantly advancing, the last bidder is the buyer.

> And much more honest, to be hir'd, and stand
> With *auctionary* hammer in thy hand;
> Provoking, to give more, and knocking thrice,
> For the old household stuff, or picture's price.
> *Dryden's Juvenal*

> Estates are landscapes, gaz'd upon awhile,
> Then adv rtis'd, and *auctioneer'd* away.
> *Cowper's Poems. The Task*, book iii.

Auction, in old medical writings, the nourishment of an animal body, whereby it is increased in size.

AUCTION, in Roman antiquity, was originally a kind of sale, performed by the public crier sub hasta, i. e. under a spear stuck up on the occasion, and by a magistrate, who delivered the goods. It was termed auctio, q. d. increase, because the goods were sold to him, qui plurimum rem augeret, who bid most for them. The auctioneer was called Auctor; and the term auctoritas denoted the right of property which the sale vested in the purchaser. A spear being set up in the forum as the sign of an auction, the phrase sub hastâ venire; (literally, to be sold under the spear) denoted a sale by auction.

The civil law, according to Huber, Prælectiones, xviii. 2. 7. held private biddings, by or on behalf of the seller, to be fraudulent: and this principle was adopted by the courts of law in this country, in the days of Lord Mansfield, whose inclination to adopt the maxims of the civil code is well known; but latterly the legislature seems to recognise the practice, by exempting such private biddings from the duty imposed on sales by auction. A sale, however, cannot be supported where the purchaser was the only real bidder, and public notice was not given of the owner's intention to bid; but that public notice is not essential to the validity of a sale, if there be a contest between one or more real bidders. (See Sugden's Law of Vendors). In a Dutch auction, the auctioneer commences by naming a high price, and gradually reduces it, until some person closes with his offer.

AUCTORATI, in Roman antiquity, persons who entered the lists as gladiators, and received wages, or hired themselves to perform in the public games.

AUCTORATI MILITES, soldiers bound by oath, and the receipt of wages, to serve in war. They stood opposed to the exauctorati, who were disbanded. The payment they received for their service was denominated auctoramentum.

AUDA'CIOUS, AUDA'CIOUSLY, AUDA'CIOUSNESS, AUDA'CITY. Lat. *audax*, daring; from *audeo*, I dare. These words describe that bold enterprising incautious spirit, which, without deliberation, undertakes to try to vanquish.

Your reasons at dinner have been sharp and sententious; pleasant without scurrility, witty without affectation, *audacious* without impudency.
Shakspeare. Love's Labour Lost.

Excusing, cavilling upon mandates and directions, is a kind of shaking off the yoke and assay of disobedience; especially, if in those disputings they which are for the direction speak fearfully and tenderly, and those that are against it, *audaciously*.
Lord Bacon's Essays.

Anniball took his losse and dammage nothing neere the heart, but rather made full reckning, that he had caught (as it were) with a bait, and fleshed the *audacitesse* of the foolehastie consull, and of the soul-diours especially. *Holland's Livy.*

As when the wolf has torn a bullock's hide,
At unawares, or ranch'd a shepherd's side;
Conscious of his *audacious* deed he flies,
And claps his quiv'ring tail between his thighs.
Dryden's Virgil. Æn. 11.

As knowledge without justice ought to be called cunning rather than wisdom, so a mind prepared to meet danger, if excited by its own eagerness, and not the public good, deserves the name of *audacity* rather than of fortitude. *Steele.*

AUDE, a department of France, bounded by that of Arriege on the west, Upper Garonne on the north-west, Tarn on the north, Herault on the north-east, the Mediterranean on the east, and the eastern Pyrenees on the south. It is named from the river.

AUDE, a river in France, which rises in the Cerdagne among the Pyrenees, and, running north by Alet, visits Carcassone, and, directing its course by Quillan and Limouse, falls into the Mediterranean, a little to the north-east of Narbonne. The Romans dug up gold from its banks and channel.

AUDEANISM, the same with anthropomorphism. See ANTHROPOMORPHITE.

AUDEBERT, Germain, a counsellor of Orleans, on whom the senate of Venice conferred the order of knight of St. Mark, for a panegyric in verse, upon the republic, written by him while at that city. Henry II. honored him with a patent of nobility. He died in 1598; and his poems were collected and published in 1602.

AUDEBERT, John Baptist, a French naturalist, and a celebrated engraver of natural history, was born at Rochefort, in 1759. So much did he excel in the just and elegant representation of animals, that his productions are accounted among the most valuable in the line. His first piece was L'Hist. Nat. des Singes des Makis et des Galeopithèques; a folio volume, published in 1800. This work drew the attention of the professors of the museum of natural history at Paris, who recommended it and the author in honorable terms to the minister of the interior. He did not live to enjoy the fruits of his labors: but died in 1800, while engaged in other works of equal splendor.

AUDEUS, or AUDIUS, the chief of the Audeans, obtained the name of a heretic, and the punishment of banishment, for celebrating easter in the manner of the Jews, and attributing a human form to the Deity. He died in the country of the Goths, about A. D. 370.

AUDIANISM, the system of Audius and his followers; particularly as to the belief of the human figure of the Deity. See ANTHROPOMORPHITES.

AU'DIBLE, *n.* & *adj.* AU'DIBLY, AU'DIENCE, AU'DIENT. Lat. *audio*, I hear; that which may be heard. Loud enough to be heard; sounding.

But when this lady comen was
To th' emperour, in his presence,
She said aloud in *audience*.
Gower. Con. A. book ii.

Visibles are swiftlier carried to the sense than *audibles*; as appeareth in thunder and lightning, flame and report of a piece. *Bacon's Works*, vol. i.

Therefore the Omnipotent
Eternal Father (for where is not he
Present), thus to his Son *audibly* spake.
Milton. Paradise Lost, b. vii.

Don Quixote did prosecute his discourse, in such sort, and with so pleasing terms, as he had almost induced his *audients* to esteem him to be at that time at least exempt from his frenzie.
Shelton's Trans. of Don Quixote.

AUDIENCE COURT; a court belonging to the archbishop of Canterbury, of equal authority with the arches court, though inferior both in dignity and antiquity. The original of this court was, because the archbishop of Canterbury heard several causes extrajudicially at home in his own palace; which he usually committed to be discussed by men learned in the civil and canon laws, whom he called his auditors; and so in time it became the power of the man, who is called causarum negotiorumque audientiæ Cantuarensis auditor, seu officialis. Cowel.

AUDIENCE COURTS are chiefly concerned in deciding differences arising upon elections, consecrations, institutions, marriages, &c.

AUDIENCE is also the name of a court of justice established in the West Indies by the Spaniards, answering in effect to the parliament under the old government of France. These courts take in several provinces, called also audiences, from the names of the tribunal to which they belong.

AUDIENCE OF AMBASSADORS: a ceremony observed in courts at the admission of ambassadors or public ministers to a hearing. In England, audience is given to ambassadors in the presence chamber: to envoys and residents, in a gallery, closet, or in any place where the king happens to be. Upon being admitted, as is the custom of all courts, they make three bows; after which they cover and sit down; but not before the king has covered and sat down, and has given them the sign to put on their hats. When the king does not wish to have them covered, and sit, he himself stands uncovered; which is taken as a slight. At Constantinople, ministers usually have audience of the prime vizier.

AUDIENDO ET TERMINANDO, a writ, or rather a commission to certain persons, when any insurrection or great riot is committed in any place, for the appeasing and punishment thereof.

AUDIENTES, or AUDITORES, in church history, an order of catechumens, consisting of those newly instructed in the mysteries of the Christian religion, and not yet admitted to baptism.

AUDIFRET (John Baptist), an eminent French geographer, born in 1657. He was employed on embassies to the courts of Mantua, Parma, and Modena; and was author of Ancient and Modern Geography, 3 vols. 4to, Paris, 1689. He died at Nancy, in 1733.

AUDIGUIER (Vital d'), a French nobleman, born at Menor, near Ville-franche de Rouergue, about 1565. Besides several other pieces, he wrote a treatise on Duels, printed at Paris in 1617; and Poems on different subjects, 2 vols. 8vo. 1614. He died in 1630.

AU'DIT, *v.* & *n.*
AU'DITOR,
AU'DITORY, *n.* & *adj.*
AU'DITRESS.

Lat. *audio*, I hear. To audit is to hear whatever may be said on the subject in hand with a view of passing a judgment; generally applied to the examination and passing of accounts by persons denominated auditors, but who are, perhaps, in these transactions, more properly, inspectors. Auditory applies to persons who hear, and sometimes to the place in which they are assembled.

In vain shall this be expected from our younger years; which the wise philosopher excludes from being meet *auditors*, much less judges of true morality.
Bp. Hall's Balm of Gilead.

Yet went she not; as, not with such discourse
Delighted; or not capable her ear,
Of what was high: such pleasure she reserv'd,
Adam relating, she sole *auditress*.
Milton.

Met in the church, I look upon you, as an *auditory*, fit to be waited on (as you are) by both universities.
South.

Several of this *auditory* were, perhaps, entire strangers to the person whose death we now lament.
Atterbury.

Foh! 'twas a bribe that left it; he has touch'd
Corruption! whoso seeks an *audit* here
Propitious, pays his tribute, game or fish,
Wild fowl or ven'son; and his errand speaks.
Cowper's Poems.

Will make your very heart strings ake
With loud and everlasting clack,
And beat your *auditory* drum,
Till you grow deaf, or they grow dumb.
Beattie. The Wolf and Shepherds.

AUDITA QUERELA, a writ which lies against him who has taken a recognizance in the nature of a statute-staple, or the like, and has asked, or obtained, execution from the mayor and bailiffs, or judges, before whom it was entered, &c. It is granted by the lord chancellor, upon view of the exception suggested, to the judges of either bench, willing them to grant summons to the sheriff of the county where the creditor is, for his appearance at a certain day before them. But the indulgence now shown by the courts in granting a summary relief upon motion, in cases of evident oppression, has almost rendered this writ useless, and driven it quite out of practice. A late learned judge, Ch. J. Eyre, i. B. and p. 428, states that the court will grant relief upon motion in all cases where a party would have been entitled to relief by auditâ querelâ. The legal student will find this subject clearly expounded in Mr. Serjeant Williams's notes to Saunders's Reports, in the case of Turner v. Davies, vol. ii. p. 137, d.

AUDITIONALIS SCHOLASTICUS, in writers of the middle age, an advocate who pleads causes for his clients in audiences.

AUDITORS OF THE REVENUE, or of the exchequer, officers who take the accounts of those who collect the revenue and taxes raised by parliament, the accounts of the sheriffs, escheators, collectors, tenants, customers, &c. The auditor of the exchequer, an office enjoyed for life, is one of considerable trust. He is to file the teller's bills, by which they charge themselves with all the monies received; and by warrant from the lord treasurer, or the commissioners of the treasury, he draws all orders to be signed by him or them, for issuing forth all monies, by virtue of privy seals, which are recorded in the clerk of the Pells' office, and entered and lodged in the auditor's office. He also, by warrant of the lord treasurer, or commissioners of the treasury, makes debentures to such as have fees, annuities or pensions, by letters patent from the king, out of the exchequer, and directs them for payment to the tellers. He daily receives the state of the account of each teller, and weekly

certificates the whole to the lords of the treasury. At Michaelmas and lady-day the auditor of the exchequer makes a declaration; that is, he delivers an abstract of all accounts and payments made in the preceding half year, one for the lords of the treasury, and the other for the chancellor of the exchequer. The office is holden for life.

AUDITORES, in church history, a branch of the Manichean sect, who were divided into electi and auditores; corresponding, according to some writers, to clergy and laity; and according to others, to the faithful and catechumens among the catholics. By the Manichean rule, a different course of life was prescribed to the elect from that of the auditors. The latter might eat flesh, drink wine, bathe, marry, traffic, possess estates, bear magistracy, and the like; all which things were forbidden to the elect. The auditors were obliged to maintain the elect, and kneeled down to ask their blessing. Beausobre observes, that the elect were ecclesiastics, and in general such as made profession of observing certain counsels, called evangelic; such as the clergy and monks, and they were called the perfect by Theodoret. The auditors were the laity, and so denominated because they heard in the church, while others taught and instructed. See AUDIENTES.

AUDITORIUM, in the ancient churches, was that part where the audientes stood to hear and be instructed. The auditorium was the part now called navis ecclesiæ. See NAVE. In the primitive times, the church was so strict in keeping people together in that place, that the person who went from thence in sermon-time was ordered by the council of Carthage to be excommunicated.

AUDITORIUS MEATUS, the auditory passage or entrance of the ear, called also aurium alveare, on account of the wax collected in it.

AUDITORY, in ancient churches. See AUDITORIUM.

AUDITORY is also used for the bench whereon a magistrate, or judge, hears causes. At Rome, the magistrates had auditories, according to their dignity. Those of the superior officers were called tribunals; those of the inferior, subsellia. The pedanei had their auditories in the portico of the imperial palace. Those of the Hebrews, at the gates of cities. The judges appointed by the ancient lords distributed justice under an elm, which was usually planted before the manor-house, and served them for an auditory.

AUDITORY NERVES, the seventh pair, arising from the medulla oblongata, and distributed, the one to the ear, the other to the tongue, eye, &c.

AUDLEY (Edmund), the son of Lord Audley, bishop of Rochester and Hereford, under Henry VII., was a man of great learning and generosity. He gave £400 to Lincoln College, to purchase lands, and was also a benefactor to St. Mary's Church, Oxford. He died in 1524.

AUDLEY (James, Lord Audley), one of the English heroes who fought under Edward III. was born about 1314. In 1343 he was made governor of Berwick. In 1353 he reduced a great part of the country of Valois in France; and was present at the famous battle of Poictiers in 1356; where, having obtained leave of Edward the Black Prince, to charge in front (in consequence of a vow he had made), he performed extraordinary feats of personal valor: but being at last dangerously wounded, was carried out of the field. In 1360 he again attended Edward III. to the wars in France; and after the peace, in 1361, was made constable of Gloucester Castle, governor of Aquitain, and seneschal of Poictou. He died April 1, 1386.

AUDLEY (Sir Thomas), descended of an ancient family in Essex, was born in 1488; and, having the advantage of an university education, was taken notice of by Henry VIII. and appointed speaker of the House of Commons in 1529. Having pleased the king in this station, he promoted him farther next year; and in 1532, appointed him Lord keeper of the Great Seal, on the resignation of the famous Sir Thomas More. In 1533 he made him Lord Chancellor, with suitable emoluments. In 1535 Audley sat in judgment, and pronounced sentence of death upon Sir Thomas More, as guilty of high treason, in refusing to acknowledge the king's supremacy in the church! Upon receiving sentence, Sir Thomas More said 'he had studied this subject for seven years, but could find no authority for a layman being head of the church;' to which Audley gave this decisive answer; 'Sir, will you be reckoned wiser, or of a better conscience, than all the bishops, the nobility, and the whole kingdom?' For these and the like services, Henry created Audley a baron and a knight of the garter in 1538. He died in 1544.

AUDLEY CASTLE, a fort of Ireland, built on a promontory in the county of Down, which has a prospect of the whole lake of Strangford.

AUDLEY ROAD, a part of Strangford Bay, on the west side, on the coast of Down in Ulster, where ships may lie in safety.

AUDRAN (Benoit, or Benedict), the second son of Germain Audran, was born at Lyons in 1661, where he learned the first principles of design and engraving under his father. But soon after going to Paris, his uncle Gerard Audran took him under his tuition; and he profited so greatly by his instructions, that though he never equalled the sublime style of his tutor, yet he deservedly acquired great reputation. Abbe Fontenai says, 'We admire in his works a share of those beauties which we find in the engravings of the illustrious Gerard.' He was appointed the king's engraver, received the royal pension, was made an academician, and admitted into the council, in 1715. He died unmarried at Louzouer, where he had an estate, in 1721. His manner was founded upon the bold clear style of his uncle. His outlines were firm and determined; his drawing correct; the heads of his figures are in general very expressive; and the other extremities well marked. His works, compared with those of his uncle, appear to want that mellowness and harmony so conspicuous in the latter; and the round dots with which he finishes his flesh upon the lights are often too predominant. In his most finished plates the mechanical part of the engraving is extremely neat, and managed with great taste. One of his neatest prints is that of Alexander sick, drinking

from the cup which his physician presents to him; a circular plate, from Le Sueur.

Audran (Benoit), the second engraver of that name, the son of John Audran, and nephew to the former Benoit; was also established at Paris. A little attention will easily distinguish his works, which are vastly inferior to those of his uncle. One of the best of his plates is the descent from the cross, from a picture of Poussin.

Audran (Carl), an eminent French engraver, brother, or cousin to Claude, was born at Paris in 1594. In his infancy he discovered much taste for the arts; and to perfect himself in engraving he went to Rome, where he produced several prints that did him great honor. At his return, he adopted that species of engraving which is performed with the graver only. He settled at Paris, where he died in 1674, unmarried. The abbé Marolles, who speaks of him with great praise, attributes 130 prints to him: amongst which, the annunciation, a middling sized plate, upright, from Annibale Caracci; and the assumption, in a circle, from Dominichino, are the most esteemed. In the early part of his life he marked his prints with C, for Carl, till his brother Claude published some plates with the same initial, when, for distinction sake, he used the letter K, or wrote his name Karl.

Audran (Claude), a French engraver, the first of the celebrated artists of that name, was the son of Lewis Audran, an officer belonging to the wolf hunters in the reign of Henry IV. of France; and was born at Paris in 1592. Although he never made any great progress in the art, yet he had the honor to be the father of three great artists, Germain, Claude, and Gerard. The last of whom has immortalised the name of the family. He died at Lyons, in 1677.

Audran (Claude), the second son to Claude, was born at Lyons in 1639, and went to Rome to study painting; where he succeeded so well, that at his return he was employed by Le Brun to assist him in the battles of Alexander, which he was then painting for Louis XIV. He was received into the Royal Academy in 1675, and died unmarried at Paris in 1684. His virtues (says abbé Fontenai) were as praise-worthy as his talents.

Audran (Gerard), the most celebrated artist of his family, was the third son of Claude, and born at Lyons in 1640. He learned from his father the first principles of design and engraving at Lyons; and went to Paris, where his genius soon began to manifest itself. Le Brun employed him to engrave the battle of Constantine, and the triumph of that emperor; and for these works he obtained apartments at the Gobelins. At Rome he is said to have studied under Carlo Maratti, to perfect himself in drawing; and in that city he engraved several fine plates. M. Colbert was so struck with the beauty of Audran's works while he resided at Rome, that he persuaded Louis XIV. to recal him. On his return, he was appointed engraver to the king. In 1681 he was named counsellor of the Royal Academy; and died at Paris in 1703. He had been married, but left no male issue. The greatest excellency of this artist, above that of any other engraver, was, that though he drew admirably himself, yet he contracted no manner of his own; but transcribed on copper simply, with great truth and spirit, the style of the masters whose pictures he copied. On viewing his prints, we lose sight of the engraver, and naturally say, it is Le Brun, Poussin, Mignard, or Le Sueur, &c. as we turn to the prints which he engraved from those masters. 'This sublime artist,' says the abbé Fontenai, 'far from conceiving that a servile arrangement of strokes, and the too frequently cold and affected clearness of the graver, were the great essentials of historical engraving, gave worth to his works by a bold mixture of free hatchings and dots, placed together apparently without order, but with an inimitable degree of taste; and has left to posterity most admirable examples of the style in which grand compositions ought to be treated. His greatest works, which have not a very flattering appearance to the ignorant eye, are the admiration of true connoisseurs and persons of fine taste. He acquired the most profound knowledge of the art, by the constant attention he bestowed upon the science of design, and the frequent use he made of painting from nature. He knew how to penetrate into the genius of the painter he copied from; often improved upon, and sometimes even surpassed him. Without exception, he was the most celebrated engraver that ever existed in the historical line. We have several subjects which he engraved from his own designs, that manifested as much taste as character and facility. But, in the battles of Alexander, he surpassed even the expectations of Le Brun himself.' These consist of three very large prints, length-ways, each consisting of four plates, which join together, from Le Brun, viz. The passage of the Granicus; The battle of Arbela; and Porus brought to Alexander, after his defeat. To this set are added two large prints, length-ways, on two plates each, also from Le Brun, viz. Alexander entering the tent of Darius, and the triumphal entry of Alexander into Babylon. The former was engraved by Gerard Edelink, and the latter by Gerard Audran. Of all these plates, those impressions are most esteemed which have the name of Goyton the printer marked upon them.

Audran (Germain), the eldest son of Claude, was born in 1631 at Lyons, where his parents then resided. Not content with the instructions of his father, he went to Paris, and perfected himself under his uncle Carl. Upon his return to Lyons, he published several prints which did him great honor. His merit was in such estimation, that he was made a member of the academy, and chosen a professor. He died at Lyons in 1710, and left behind him four sons, all artists; namely, Claude, Benoit, John, and Lewis.

Audran (John), the third son of Germain Audran, was born at Lyons in 1667; and, after being instructed by his father, went to Paris to perfect himself in the art under his uncle Gerard. At the age of twenty he began to display his genius in a surprising manner; and his success was such, that in 1707 he obtained the title of engraver to the king, and had a pension allowed him, with apartments in the Gobelins;

and the following year he was made a member of the Royal Academy. He was eighty years of age before he quitted the graver; and near ninety when he died, at the apartments assigned him by the king. He left three sons, one of whom was also an engraver. 'The most masterly and best prints of this artist (in Mr. Strutt's opinion) are those which are not so pleasing to the eye at first sight. In these the etching constitutes a great part; and he has finished them in a bold rough style. The scientific hand of the master appears in them on examination. The drawing of the human figure, where it is shown, is correct. The heads are expressive and finely finished; the other extremities well marked. He has not, however, equalled his uncle. He wants that harmony in the effect; his lights are too much and too equally covered; and there is not sufficient difference between the style in which he has engraved his back grounds and his draperies. This observation refers to a fine print by him of Athaliah, and such as he engraved in that style. At other times he seems almost to have quitted the point, and substituted the graver. But here I think he has not so well succeeded. The effect is cold and silvery: see for example, the Andromache from Sylvestre. One of his best finished prints, in this neat style, seems to be Cupid and Psyche from Ant. Coypel.'

AUDRAN (Lewis), the last son of Germain Audran, was born at Lyons in 1670; from whence he went to Paris in 1712, before he had produced any great number of prints. The most esteemed are his seven acts of mercy, on seven middling-sized plates, from Sebastian Bourdon.

AUDREY, or ETHELREDA, an Anglo-Saxon princess, wife of Egfrid, king of Northumberland. She turned abbess, and was canonized after her death.

AV'E, } A corruption of the Latin
AVE MARY. } *Ave Maria*, Hail Mary! A reverential address used by Catholics to the Virgin Mary.

All his mind is bent on holiness,
To number *Ave Marias* on his beads. *Shakspeare.*

AVE MARY. In the Romish church, their chaplets and rosaries are divided into so many ave-marias and so many paternosters. It has been observed by Bingham and others, that among all the short prayers used by the ancients before their sermons, there is not the least mention of an ave-mary; and that its original can be carried no higher than the beginning of the fifteenth century, when Vincentius Ferrerius, who was a celebrated preacher, first used it before his discourses; from his example it obtained such authority, as not only to be prefixed to all the sermons of the Romish preachers, but to be joined with the Lord's Prayer in their breviary.

AVEIRO, a considerable town of Portugal, in Beira, seated near the head of a small gulf at the mouth of the Vouga; which forms a haven with a bar, over which vessels may pass that do not draw above eight or nine feet water. The city stands in a long plain, well watered, and very fertile. This plain is nine miles broad, from Porto to Coimbra; and is bounded on the east by a chain of mountains called Sierra d'Alcoba, which reach from the one town to the other. Near this city salt is made in sufficient quantity to serve two or three provinces. It has a nunnery, where none are admitted but the daughters of the nobility. Many English are settled here, on account of the thriving trade in oil, salt, and fish, especially sardels. It lies thirty miles S. of Oporto. Long. 8° 30′ W. lat. 40° 40′ N.

AVEIRON, a department of France, bounded by that of Cantal on the north, by those of Lozere and Gard on the east, Herault and Tarn on the south, and Lot on the west. It is named from the river.

AVEIRON, a river of France, which rises near Severac, and flowing by Rhodes and Villefranche, falls into the Garonne below Montauban.

AVEL, avello, Lat. to pull away.

The beaver in chase makes some divulsion of parts, yet are not these parts *avelled* to be termed testicles. *Brown.*

AVELLA, a town of Campagni di Roma.

AVELLA. See AQUILA.

AVELLANA, in botany, nux pontica, filbert, a sort of nut, anciently so called, from Avellanum, a town of Campania, where they abounded. See AVELLINO It is the corylus avellana of Linnæus. Plin. l. 25, c. 23.

AVELLANA PURGATRIX, in the materia medica, the fruit of a species of ricinus.

AVELLANDA, in botany, a name given by the Spaniards to the roots of the Torsi, or sweet cyperus. These are esculent, and of a very delicious taste: they seem to have had the name from their likeness to the avellana, or hazel nut. Garcias, and some others, have thought that the curcas of Malabar was the same with the avellanda of Europe. But this does not seem to be the case; for the curcas, though of the same size and shape with the avellanda, has a hard coat like the common filbert.

AVELLANE, in heraldry, a cross, the quarters of which somewhat resemble a filbert-nut. Sylvanus Morgan says, that it is the cross which ensigns the sovereign's globe.

AVELLINO, a city of Italy, in the kingdom of Naples, with a bishop's see. It was almost ruined by an earthquake in 1694. It is, however, at present a pretty considerable place, extending a mile in length down the declivity of a hill, with ugly streets, but tolerable houses. The churches have nothing to recommend them, being crowded with monstrous ornaments in the barbarous style, which the Neapolitans seem to have borrowed from the Spaniards. The cathedral is a poor building, in a wretched situation, with little to attract the eye. The good catholics need not run to Naples to see the blood of St. Januarius; for they have a statue of St. Lawrence, with a phial of his blood; which, for eight days in August, entertains them here with a similar miraculous liquefaction. The only edifice of note is a public granary, of the Composite order, adorned with antique statues, and a very elegant bronze one of Charles II. of Spain, while a boy, cast by Cavalier Cosimo. The number of inhabitants amounts to 8000, some say 10,000. The bishop's revenue is

about 6000 ducats (£1125) a-year. The magistracy consists of a syndic and four eletti, all annual; which offices are engrossed by a certain number of families of distinction. Avellino has a considerable manufacture of cloth of various qualities and colors, but chiefly blue. Many wealthy merchants have a concern in this business. The second article of trade is maccaroni, and paste of many kinds, which, being of an excellent quality, are in high repute all over the country. Wooden chairs are also made and sold in great quantities. Avellino abounds with provisions of every sort; each street is supplied with wholesome water; but the wine is indifferent. The soil of this district, which consists chiefly of volcanic substances, produces little corn, but fruit in abundance, of which the apple is deservedly held in great esteem. The most profitable, however, of all its fruit-trees is the hazel. Nut-bushes cover the face of the valley, and in good years bring in a profit of 60,000 ducats (£11,250). The nuts are mostly of the large round species of filbert, which we call Spanish. These bushes were originally imported into Italy from Pontus, and known among the Romans by the appellation of nux Pontica, which, in process of time, was changed into that of nux Avellana, from the place where they had been propagated with the greatest success. The proprietors plant them in rows, and by dressing, form them into large bushes of many stems. Every year they refresh the roots with new earth, and prune off the straggling shoots with great attention. Between Avellino and Benevento is the Val di Gargano, better known in history by the name of Furcæ Condinæ, where the Romans were blocked up by the Samnites, and compelled to pass under the yoke, in the 433d year of Rome. Avellino is situated twenty-five miles N. E. of Naples. Long. 15° 20′ E., lat. 41° 11′ N.

AVELTON. See ALTON.

AVEN, one of the Orkney Islands, better known by the name of Sanda.

AVEN, the Scriptural name of several ancient places; particularly, 1. of Bethel, by way of metaphor, Hos. x. 8. 2. of Heliopolis, a city of Egypt, Ezek. xxx. 17. See HELIOPOLIS. 3. of a plain in Syria, between Lebanon and Antilibanus, Amos, i. 5; supposed to be the same with Baal-beck, or the valley of Lebanon. See BAAL-BECK.

AVENA, OATS, in botany, a genus of the dyginia order, and triandria class of plants; ranking in the natural method under the fourth order, gramina. The calyx has a double valve, and the awn on the back is contorted. There are thirteen species, of which the first six following are natives of Britain: viz. 1. A. elatior, the tall oat-grass. 2. A. fatua, the bearded oat-grass. 3. A. flavescens, the yellow oat-grass. 4. A. nuda, the naked oat. 5. A. pratesis, the meadow oat-grass. 6. A. pubescens, the rough oat-grass. 7. A. sativa, the common oat cultivated in our fields. It is remarkable, that the original native place of this plant is almost totally unknown. Anson says, that he observed it growing wild or spontaneously in the island of Juan Fernandez: but a vague observation from a single author is not to be depended on. For the culture, see HUSBANDRY. Oats are an article of the materia medica. Gruels made from them have a kind of soft mucilaginous quality; by which they obtund acrimonious humors, and prove useful in inflammatory diseases, coughs, hoarseness, and exulcerations of the fauces.

AVENACEOUS, something belonging to, or partaking of the nature of oats.

AVENANT, agreeable; beautiful.—*Chauc.*

AVENCHE, an ancient city of Switzerland, in the canton of Bern, formerly the capital of all Switzerland, but now greatly decayed. It lies four miles S. W. of Murat, and fifteen W. of Bern. Long. 6° 52′ E., lat. 46° 50′ N.

AVEN'GE, *v.* & *n.*
AVEN'GEANCE,
AVEN'GEMENT,
AVEN'GER,
AVEN'GERESS.

Fr. *venger*, Lat. *vindicare* (*vim dicere*, Vossius), to repel force with force. To deal out the measure allowed by the Jewish law—'a tooth for a tooth,' &c.; to denounce vengeance, to retaliate an injury, to exact punishment not sanctioned by good laws, or the benign spirit of Christianity.

That he might work th' *avengement* for his shame,
On those two caitives, which had bred him blame.
Spenser

All those great battles (which thou boasts to win
Through strife and bloodshed, and *avengement*
Now praised) hereafter thou shalt repent.
Id. Faerie Queene

There that cruel queen *avengeress*
Heap on her new waves of weary wretchedness.
Id

This neglected, fear
Signal *avengeance*; such as overtook
A miser. *Philips.*

I will *avenge* me of mine enemies. *Isaiah.*

They stood against their enemies, and were *avenged* of their adversaries. *Wisdom.*

I will *avenge* the blood of Jezreel, upon the house of Jehu. *Hosea.*

Till Jove, no longer patient, took his time,
T' *avenge* with thunder your audacious crime.
Dryden.

The just *avenger* of his injured ancestors, the victorious Louis, was darting his thunder. *Id.*

But just disease to luxury succeeds;
And ev'ry death its own *avenger* breeds. *Pope.*

Too daring bard! whose unsuccessful pride
Th' immortal Muses in their art defied;
Th' *avenging* Muses of the light of day
Depriv'd his eyes, and snatch'd his voice away.
Id.

The day shall come, that great *avenging* day,
When Troy's proud glories in the dust shall lay.
Id.

Send thy arrows forth,
Strike, strike these tyrants and *avenge* my tears.
Cumberland.

Little did I dream that I should have lived to see such disasters fallen upon her [the queen of France] in a nation of gallant men—in a nation of men of honour and of cavaliers. I thought ten thousand swords must have leaped out of their scabbards to *avenge* even a look that threatened her with insult—But the age of chivalry is gone. *Burke.*

AUENHEIM, a town of Germany, in the circle of Suabia, near Offenbourg.

AVENIO an ancient town of Cavares, and one of the most opulent in Gallia Narbonensis; now called Avignon.

AVENPACE, a Spanish Moor of the twelfth century, who wrote a commentary upon Euclid; but having adopted the peripatetic philosophy, he attempted to explain the Koran, by the system of Aristotle, for which he was imprisoned at Corduba.

AVENS, in botany. See CARYOPHYLLUS.

AVENTINE (John), was born in 1466, in Abensperg, in Bavaria. He studied first at Ingolstadt, and afterwards at Paris. In 1503 he taught eloquence and poetry at Vienna; and in 1507 he taught Greek at Cracow, in Poland. In 1509 he read lectures on Cicero, at Ingoldstadt; and in 1512 was appointed preceptor to the princes Lewis and Ernest, sons of Albert the Wise, duke of Bavaria; and travelled with the latter. After this he wrote the Annals of Bavaria, being encouraged by the dukes, who settled a pension on him. This work, which gained great reputation, was first published in 1534, by Jerome Ziegler, professor of poetry in the university of Ingolstadt; and afterwards at Basil, in 1580, by Nicolas Cisner. In 1529 he was forcibly taken out of his sister's house at Abensperg, and hurried to a jail; the true cause of which violence was never known; but it would probably have been carried to a much greater length, had not the duke of Bavaria interposed, and taken this learned man under his protection. Mr Bayle remarks, that the incurable melancholy, which from this time possessed Aventine, was so far from determining him to lead a life of celibacy, as he had done till he was sixty-four, that it induced him to think of marrying. He advised, however, with two of his friends, and consulted certain passages of the Bible relative to marriage. The result was, that it was best for him to marry; and having lost too much time, considering his age, he took the first woman he met with, who happened to be his own maid, ill-tempered, ugly, and extremely poor. He died in 1534, aged sixty-eight; leaving one daughter, who was then but two months old.

AVENTINE, or AVENTINUS, one of the seven hills on which Rome was built. It was also called Murcius, from Murcia, the goddess of sloth, who had a little chapel there; Collis Dianæ, from the temple of Diana; and Remonius, from Remus, who was buried there. It was taken within the compass of the city by Ancus Marcus. To the east it had the city walls; to the south the Campus Figulinus; to the west the Tiber; and to the north Mons Palatinus; in circuit two miles and a quarter.

AVENTURÆ, in our ancient writers, signify tournaments, or military exercises on horseback.

AVENUE. Fr. *venir, avenir;* participles *venu, avenu;* Lat. *venire*, to come. Approach, opening, passage.

Good guards were set up, at all the *avenues* of the city; to keep all people, from going out.
Clarendon.

The regulations that are established at Thebes for keeping the *avenues* free from incumbrances, maintaining the aqueducts and rendering the baths convenient, for the cultivation of arts, and for the security of the public, are the most excellent that can be imagined. *Hawkesworth's Telemachus.*

Truth is a strong hold, and diligence is laying siege to it: so that it must observe all the *avenues* and passes to it. *South.*

AVENUE, in fortification, an opening or inlet into a fort, bastion, or the like place, or the passes and ways to and from it.

AVENUE, in gardening, a walk planted on each side with trees, and leading to a house, garden-gate, wood, &c. and generally terminated by some distant object. All avenues that lead to a house ought to be at least as wide as the whole front of the house; if wider, they are better still; and avenues to woods and prospects ought not to be less than sixty feet wide. The trees should not be planted nearer to one another than thirty-five feet, especially if they are of a spreading kind; and the same ought to be the distance, if they are for a regular grove. The trees most proper for avenues with us, are the English elm, the lime, the horse-chestnut, the common chestnut, the beech, and the abele. The English elm will do in all grounds, except such as are very wet and shallow; and this is preferred to all other trees, because it will bear cutting, heading, or lopping, in any manner, better than many others. The rough or smooth Dutch elm is approved by some, because of its quick growth; this is a tree which will bear removing very well; it is also green almost as soon as any plant whatever in spring, and continues so as long as any. It makes an incomparable hedge, and is preferable to all other trees for lofty espaliers. The lime is valued for its natural growth and fine shade. The horse-chestnut is proper for all places that are not much exposed to rough winds. The common chestnut will do very well in a good soil; and rises to a considerable height when planted somewhat close; though, when it stands single, it is rather inclined to spread than to grow tall. The beech is a beautiful tree, and naturally grows well with us in its wild state; but it is less to be chosen for avenues, because it does not bear transplanting, and is very subject to miscarry. The abele is fit for any soil, and is the quickest grower of any forest-tree. It but seldom fails in transplanting; and succeeds very well in wet soils, in which the others are apt to fail. The oak is little used for avenues, because of its slow growth. The old method of planting avenues was with regular rows of trees, and this has been the practice till of late: but we have now a much more magnificent method, by setting the trees in clumps, making the opening much wider, and placing the clumps at about 300 feet distant from one another. In each of these clumps there should be planted either seven or nine trees; but this is only proper where the avenue is to be of some considerable length; for in short walks single rows of trees look better. The avenues made by clumps are fittest of all for parks. The trees in each clump should be planted about thirty feet asunder; and a trench should be thrown up round the whole clump, to prevent the deer from coming to the trees to bark them.

AVENZOAR, or EBN-ZOAR, Abu Merwan Abdalmalec, an eminent Arabian physician, who flourished about the end of the eleventh and beginning of the twelfth century. He was of noble

descent, and born at Seville, where he exercised his profession with great reputation. His grandfather and father were both physicians. The large estate he inherited, set him above practising for gain: he therefore took no fees from the poor, or from artificers, though he refused not the presents of princes and great men. His liberality was extended even to his enemies; for which reason he used to say, that they hated him not for any fault of his, but rather out of envy. Dr. Friend writes, that he lived to the age of 135; that he began to practise at forty, others say twenty, and had the advantage of a longer experience than almost any one ever had, for he enjoyed perfect health to his last hour. Avenzoar was contemporary with Averroes, who, according to Leo Africanus, heard the lectures of the former, and studied physic under him; this seems the more probable, because Averroes more than once gives Avenzoar a very high and deserved encomium, calling him 'admirable, glorious, the treasure of all knowledge, and the most supreme in physic, from the time of Galen to his own.' Avenzoar, notwithstanding, is by the generality of writers reckoned an empiric: but Dr. Friend observes, that this character suits him less than any of the Arabians. 'He was bred,' says he, 'in a physical family, his father and grandfather being both practitioners. He had a regular education; and not only learned what properly belongs to a physician, but every thing which relates to pharmacy or surgery.' Dr. Friend adds, 'that he was averse to quackery, rejected the idle superstition of astrologers; and throughout all his work professes himself so much of the dogmatical sect, that he has a great deal of reasoning about the causes and symptoms of distempers; and as in his theory he chiefly follows Galen, so he quotes him upon all occasions. Notwithstanding he is so Galenical, there are several particulars in him which seldom or never occur in other authors; and there are some cases which he relates from his own experience, which are worth perusing.' He wrote a book entitled Tayassir fi'lmadâwât w'altadbâr, i. e. The method of preparing medicines and diet; which is much esteemed. This work was translated into Hebrew, A.D. 1280, and thence into Latin by Paravicius, whose version has had several editions. The author added a supplement to it, under the title of Jâmê, or a collection. He also wrote a treatise Fi'ladwiyat wa'laughdiyat, i. e. Of Medicines and Food; wherein he treats of their qualities.

AVENZOAR, or EBN-ZOAR, the son of the former, followed his father's profession; was in great favor with Almanzur, emperor of Morocco, and wrote several treatises on physic.

AVER', } Fr. *averer;* Lat. *vereor*, to
AVER'MENT. } fear with reverence. Compounded of *ve pro valide*, greatly, and *reor*, to think. To declare positively, solemnly.

> The reason of the thing is clear;
> Would Jove the naked truth *aver*. *Prior.*

> Then vainly the philosopher *avers*,
> That reason guides our deeds, and instinct theirs;
> How can we justly diff'rent causes frame,
> When the effects entirely are the same? *Id.*

> To avoid the oath, for *averment* of the continuance of some estate, which is eigne, the party will sue a pardon. *Bacon.*

> We may *aver*, though the power of God be infinite, the capacities of matter are within limits. *Bentley.*

> That which Bucer and his associates *averred* above a hundred years ago, we still say and maintain; that which was the truth then, hath been so ever since, and shall be to all eternity. *Bp. Hall's Peace-maker.*

AVERA, in our ancient customs, a day's work of a ploughman, or other laborer, which the king's tenants in his demesne lands were obliged to pay the sheriff.

AV'ERAGE. Low Lat. *averagium*, to make or obtain a mean proportion by collecting the maxima and minima, or the highest and lowest prices.

AVERAGE, in commerce and navigation, is divided into three kinds. 1. The simple average, which consists in the extraordinary expences incurred for the ship alone, or for the merchandizes alone; such as the loss of anchors, masts, and rigging, occasioned by the common accidents at sea; the damages which happen to merchants by storm, prizes, shipwreck, wet, or rotting; all which must be paid and borne by the thing which suffered the damage. 2. The large and common average, being those expences incurred, and damages sustained, for the common security of the merchandizes and vessels, consequently to be borne by the ship and cargo, and to be regulated upon the whole. Of this number, are the goods or money given for the ransom of the ship and cargo, things thrown overboard for the safety of the ship, the expences of unloading, for entering into a river or harbour, and the provisions and hire of the sailors, when the ship is put under an embargo. 3. The small averages, which are the expences for towing and piloting the ship out of or into harbors, creeks, or rivers, one-third of which must be charged to the ship, and two-thirds to the cargo.

AVERAGE, in agriculture, a term used by the farmers in many parts of England, for the breaking of corn-fields.

AVERANI (Benedict), a native of Florence, who became Greek professor at Pisa, and wrote several critical tracts on classical authors. He died in 1707. After his death, his works were collected and printed at Florence, in 3 vols. 8vo. 1717.

AVERANI (Joseph), brother to Benedict, was born in 1662. He became professor of law at Pisa, but was particularly devoted to the study of mathematics and natural philosophy. He died in 1738. Two volumes of his orations in the academy at Florence, and some other tracts, were printed after his death.

AUERBACH, a town of Upper Saxony, in Voigtland, fourteen miles south of Zwickau, and sixty W. S. W. of Dresden. On a high rock, about four miles from this place, is found a species of topaz, called kings-crown, which is said to excel the Spanish and Bohemian in hardness, and to equal the oriental in brilliancy.

AVER-CORN, in ancient writings, such corn as by custom is brought by the tenant's carriages to the lord's granary.

AVERDUPOIS. See AVOIRDUPOIS.

AVERDY (Clement Charles de l'), an eminent French statesman, was born at Paris in 1720. He was counsellor of parliament, minister and comptroller general of the finances under Louis XV. His reputation was so great, that his appointment gave general satisfaction to the people, but falling into some mismanagement, he requested his dismission in 1764. He afterwards retired to his estate, and occupied himself in agricultural pursuits. Though he took no part in the revolution, but kept perfectly neutral, yet he was arrested and brought to the guillotine in 1793. He wrote, 1. Suite des Experiences de Gambais sur le bleds noirs ou carnés, 8vo. 2. Memoire sur le Procés criminal de Robert d'Artois, Comte de Beaumont pair de France.

AVERIA, in our old law books, properly signify oxen or horses used for the plough; but in a general sense any cattle. When mention is made of one beast, they say 'quidam equus, vel quidam bos;' when of two or more they do not say equi or boves, but averia.

AVERIA, in commerce, a branch of the Spanish revenue, signifying a tax paid for convoys to guard the ships trading to America. It was first imposed when Sir Francis Drake made his voyage to the South Sea.

AVERIIS CAPTIS IN WITHERNAM, a writ for taking cattle when unlawfully distrained and driven out of the country, so that they cannot be replevied by the sheriff.

AVER-LAND, in our old writers, such lands as the tenants ploughed with their cattle, and manured cum averiis suis, for the use of a monastery, or the lords of the soil.

AVERNAT, a sort of grape. See VINE.

AVERNI; from the privative *a*, and *ορνις*, a bird, as intimating that birds could not fly over them, but dropped down dead; among the ancient naturalists certain lakes and other places which infect the air with poisonous steams or vapors; called also mephites. Averni are said to be common in Hungary, on account of its abundance of mines. The Grotto del Cani, in Italy, is a famous one. See AVERNUS.

AVERNO, the ancient Avernus, a lake of Lavoro in Naples, lying in a narrow valley, two miles long and one broad. It is 180 feet deep in some places, and the old walls standing upon its banks are supposed to be the ruins of a temple of Apollo. Vibus Sequester, and other ancient authors represented it as bottomless. Mr. Chambers says the modern Italians call it Lago di Tripergola. See the next article.

AVERNUS, a lake of Campania in Italy, near Baiæ, famous among the ancients for its poisonous qualities. It is described by Strabo as lying within the Lucrine bay, deep and darksome, surrounded with steep banks that hang threatening over it, and only accessible by one narrow passage. Black, aged groves stretched their boughs over the watery abyss, and with impenetrable foliage excluded almost every ray of wholesome light; mephitic vapors ascending from the hot bowels of the earth, being denied free passage to the upper atmosphere, floated along the surface in poisonous mist; and killed even the birds that attempted to fly over it. These circumstances produced horrors fit for the gloomy votaries of the infernal deities. A colony of Cimmerians, as well suited to the rites as the place itself, cut dwellings in the bosom of the surrounding hills, and officiated as priests of Tartarus. Superstition, always delighted in dark ideas, early and eagerly seized upon this spot, and represented a cavern near it called the Sybil's cave, as the mouth of the infernal regions. Hither she led her trembling votaries to celebrate her dismal orgies; here she evoked the manes of departed heroes—here she offered sacrifices to the gods of hell, and attempted to dive into the secrets of futurity. Poets enlarged upon the popular theme, and painted its awful scenery with the strongest colors of their art. Homer brings Ulysses to Avernus, as to the mouth of the infernal abodes, and, in imitation of the Grecian bard, Virgil conducts his hero to the same ground. Whoever sailed thither, first did sacrifice, and endeavoured to propitiate the infernal powers, with the asistance of some priest, who attended upon the place, and directed the mystic performance. Within, a fountain of pure water broke out just over the sea, but which nobody tasted, as it was fancied to be a vein of the river Styx; near this fountain was the oracle; and the hot waters, frequent in these parts, were supposed to be branches of the burning Phlegethon. The holiness of these shades remained unimpeached for many years. Hannibal marched his army to offer incense at this altar; though it may be suspected he was led to this act of devotion rather by the hopes of surprising the garrison of Puteoli, than by his piety. After a long reign of undisturbed gloom and celebrity, a sudden glare of light was let in upon Avernus; the horrors were dispelled, and with them vanished the sanctity of the lake: the axe of Agrippa brought its forest to the ground, disturbed its sleepy waters with ships, and gave vent for all its malignant effluvia to escape. The virulence of these exhalations, as described by ancient authors, has appeared so very extraordinary, that modern writers, who know the place in a cleared state only, charge these accounts with exaggeration; but Swinburn thinks them entitled to more credit; for even now, he observes, the air is feverish and dangerous, as the jaundiced faces of the vine-dressers, who have succeeded the Sybils and the Cimmerians in the possession of the temple, most ruefully testify. Boccaccio relates, that during his residence at the Neapolitan court, the surface of this lake was suddenly covered with dead fish, black and singed, as if killed by some subaqueous eruption of fire. The changes of fortune in these lakes, is singular: in the splendid days of imperial Rome, the Lucrine was the chosen spot for the brilliant parties of pleasure of a voluptuous court: now, a slimy bed of rushes covers the scattered pools of this once beautiful sheet of water; while the once dusky Avernus is clear and serene, offering a most alluring surface and charming scene for similar amusements Opposite to the temple is a cave usually styled the Sybil's grotto; but apparently more likely to have been the mouth of communication between Cuma and Avernus, than the abode of a pro-

phetess; especially as the Sybil is positively said by historians to have dwelt in a cavern under the Cumæan citadel. Mr. Eustace (Classical Tour) describes the Avernus as a circular sheet of water, about a mile and a half in circumference, and in many places nearly 190 feet deep; surrounded by ground low on the one side, on the other high, but not steep, in rich cultivation, and slightly wooded. On the southern bank stands a large and lofty octagonal building, vaulted, and of brick, with halls adjoining. This probably was the temple of Proserpine, or of Avernus itself. It is surrounded by vineyards. On the northern bank, under a steep, overhung with shrubs and brambles, is a subterraneous gallery, still called the Grotto della Sibilla. The first gallery runs under the Monte Grillo, in the direction of Baiæ. It opens into a second on the right, tending towards Cumæ; after some distance, a piece of water crosses it, called the Sybil's bath. The ground then rises rapidly, and all farther progress is stopped by the fallen walls. The situation and appearance of the cavern agree very closely with the description of Virgil. It branched out into several other galleries; and probably furnished him with much of the scenery in the sixth book. The Lago di Tripergola, as it is called at present, has lost all claim to its former appellation, since in winter it abounds in water-fowl. There can be no doubt that the lake is the crater of an exhausted volcano.

AVER-PENNY, q. d. AVERAGE PENNY, money contributed towards the king's averages; or money given to be freed thereof. See AVERAGE.

AVERHOA, in botany, a genus of the decandria order, belonging to the pentagynia class of plants; ranking in the natural method under the fourth order, gruinales. The calyx has five leaves, the petals are five, opening at top; and the apple or fruit is pentagonous, and divided into five cells. There are three species, viz. 1. A. acida; 2. A. blimbi; and 3. A. carambola, called in Bengal the camrue or camrunga. This plant is remarkable for possessing a power somewhat similar to those species of mimosa which are termed sensitive plants; its leaves on being touched moving very perceptibly. In the mimosa the moving faculty extends to the branches; but from the hardness of the wood this cannot be expected in the carambola. The leaves are alternately pinnated with an odd one; and their most common position in the day-time is horizontal, or on the same plane with the branch from which they come out. On being touched they move themselves downwards, frequently in so great a degree that the two opposite almost touch one another by their under sides, and the young ones sometimes either come into contact, or even pass each other; the whole of the leaves of one pinna move by striking the branch with the nail of the finger, or other hard substance; or each leaf can be moved singly, by making an impression that shall not exceed beyond that leaf. In this way the leaves of one side of the pinna may be made to move one after another, whilst the opposite ones continue as they were; or they may be made to move alternately in any order, by touching properly the leaf intended to be put in motion. But if the impression even on a single leaf be strong, all the leaves on that pinna, and sometimes on the neighbouring ones, will be affected by it. Notwithstanding this apparent sensibility of the leaf, however, large incisions may be made in it with a pair of sharp scissars, without occasioning the smallest motion; nay, it may even be cut almost entirely off, and the remaining part still continue unmoved, when by touching the wounded leaf with the finger or point of the scissars, motion will take place as if no injury had been offered. The reason is, that although the leaf be the ostensible part which moves, the petiolus is the seat both of sense and action: for although the leaf may be cut in pieces, or squeezed with great force, provided its direction be not changed without any motion being occasioned; yet if the impression on the leaf be made in such a way as to affect the petiolus, the motion will take place. When, therefore, it is wanted to confine the motion of a single leaf, either touch it so as only to affect its own petiolus, or without meddling with the leaf, touch the petiolus with any small pointed body, as a pin or knife. By compressing the universal petiolus near the place where a partial one comes out, the leaf moves in a few seconds in the same manner as if the partial petiolus had been touched. Whether the impression be made by puncture, percussion, or compression, the motion does not instantly follow; generally several seconds intervene, and then it is not with a jerk, but regular and gradual. Afterwards when the leaves return to their former situation, which is commonly in a quarter of an hour or less, it is in so slow a manner as to be almost imperceptible. On sticking a pin into the universal petiolus, as its origin, the leaf next it, which is always on the opposite side, next the second leaf on the outer, and so on. But this regular progression seldom continues throughout; for the leaves on the outer side of the pinna seem to be affected both more quickly, and with more energy, than those of the inner; so that the fourth leaf on the outer side frequently moves as soon as the third on the inner, and sometimes a leaf, especially on the inner side, does not move at all, whilst those above and below it are affected in their proper time. Sometimes the leaves at the extremity of the petiolus move sooner than several others, which were nearer the place where the pin was put in. On making a compression with a pair of pincers on the universal petiolus, between any two pair of leaves, those above the compressed part, or nearer the extremity of the petiolus, move sooner than those under it, or nearer the origin; and frequently the motion will extend upwards to the extreme leaf, whilst below it perhaps does not go farther than the nearest pair. If the leaves happen to be blown by the wind against one another, or against the branches, they are frequently put in motion; but when a branch is moved gently, either by the hand or the wind, without striking against any thing, no motion of the leaves take place. When left to themselves in the day-time, shaded from the sun, wind, rain, or any disturbing cause, the appearance of the leaves is different from that of other

pinnated plants. In the latter a great uniformity subsists in the respective position of the leaves on the pinna; but in the carambola, some will be seen on the horizontal plane, some raised above it, and others fallen under it; and in an hour or so, without any order or regularity which can be observed, all of them will have changed their respective positions. Cutting the bark of the branch down to the wood, and even separating it about the space of half an inch all around, so as to stop all communication by the vessels of the bark, does not for the first day affect the leaves, either in their position or their aptitude for motion. In a branch, which was cut through in such a manner as to leave it suspended only by a little of the bark no thicker than a thread, the leaves next day did not rise so high as the others; but they were green and fresh, and, on being touched, moved, but in a much less degree than formerly. After sun-set the leaves go to sleep, first moving down so as to touch one another by their under sides; they therefore perform more extensive motion at night of themselves than they can be made to do in the day-time by external impressions. With a convex lens the rays of the sun may be collected on a leaf, so as to burn a hole in it, without occasioning any motion. But upon trying the experiment on the petiolus, the motion is as quick as if from strong percussion, although the rays be not so much concentrated as to cause pain when applied in the same degree on the back of the hand. The leaves move very fast from the electrical shock, even although very gentle.

AVERRHOISTS. See AVERROISTS.

AVERROES, one of the most subtle of the Arabian philosophers, flourished about the end of the eleventh and beginning of the twelfth centuries. He was the son of the high-priest and chief judge of Cordova in Spain; and educated in the university of Morocco, in which he was afterwards a professor; and studied natural philosophy, medicine, mathematics, law, and divinity. After the death of his father he enjoyed his posts; and was farther promoted by Almanzor, emperor of Morocco, to be judge of Morocco and Mauritania, with leave to appoint delegates, and remain at Cordova. But notwithstanding his great emoluments, his liberality to men of letters in necessity, whether they were his friends or his enemies, made him always in debt. He was afterwards stripped of all his posts and thrown into prison for heresy; but the judge who succeeded him, being convicted of oppression, he was restored to his former employments. He died at Morocco in 1206. Averroes was excessively corpulent, though he eat but once a-day. He spent his nights in the study of philosophy; and when fatigued, amused himself with poetry or history. But was never seen to play at any game, or to partake in any diversion. He was extremely fond of Aristotle's works, and wrote commentaries on them, whence he was styled the commentator, by way of eminence. He likewise wrote Colliget, i. e. Universal; or, The Whole Art of Physic; and many amorous verses; but these he burnt when he grew old. His other poems are lost. As to religion, his opinions were, that Christianity is absurd; Judaism, the religion of children; and Mahommedanism, the religion of swine.

AVERROISTS, a sect of peripatetic philosophers, who appeared in Italy some time before the restoration of learning, and attacked the immortality of the soul. They took their denomination from Averroes, the celebrated interpreter of Aristotle, above mentioned. Although they held the soul to be mortal, according to reason or philosophy, yet they submitted to the Christian theology, which declares it immortal. But their distinction was held suspicious; and this divorce of faith from reason was condemned by the last council of Lateran, under Leo X.

AVERRUN'CATE, } Lat. *averrunco*, I turn
AVERRUNCA'TION. } or take away whatever hurts. To weed, to avert an evil, to cut off what is superfluous.

> I wish myself a pseudo-prophet,
> But sure some mischief will come of it,
> Unless by providential wit,
> Or force, we *averruncate* it. *Butler's Hudibras.*

AVERRUNCI DEI; from averrunco, to avert; gods, whose business it was, according to the Pagan theology, to avert misfortunes. Apollo and Hercules were of the number, among the Greeks; Castor and Pollux among the Romans, and Isis among the Egyptians.

AVERSA, a town of Naples, in the Terra di Lavoro, anciently called Atella. It is situated in a fine plain, covered with vineyards and orange trees, and is the seat of a bishop (who holds immediately of the pope), of a royal governor and a judge. There are here sixteen cloisters of different orders, exclusive of nine parish churches. Population 13,800. Eight miles north of Naples. Long. 14° 1′ E., lat. 41° N.

AVERSION, according to lord Kames, is opposed to affection, and not to desire, as it commonly is. We have an affection to one person; we have an aversion to another; the former disposes us to do good to its object, the latter to do ill.

AVERSIONE LOCARE, AVERSIONE VENIRE, in the civil law, the selling, or letting things in the lump, without fixing particular prices for each piece.

AVERT', AVER'TER, AVER'SE, AVERSE'LY, AVERSE'NESS, AVERSA'TION, AVER'SION, AVER'SIVE. } *A*, and *verto*, *versum*, to turn away or from. Averse expresses the state of having the mind turned from a thing. It signifies also unwilling, loath, reluctant.

It is most true, that a natural and secret hatred, and *aversation* towards society in any man, hath somewhat of the savage beast; but it is most untrue, that it should have any character at all of the Divine Nature, except it proceed not out of a pleasure in solitude, but out of a love and desire to sequester a man's self for a higher conversation.

Lord Bacon's Essays.

When people began to espy the falsehood of oracles, whereupon all gentility was built; their hearts were utterly *averted* from it. *Hooker.*

Even cut themselves off from the opportunities of proselyting others, by *averting* them from their company. *Government of the Tongue.*

There is such a general *aversation* (in human nature) to contempt, that there is scarce any thing more exasperating: I will not deny, but the excess of the *aversation* may be levelled against pride. *Id.*

I beseech you,
T' *avert* your liking a more worthy way,
Than on a wretch. *Shakspeare. King Lear.*

At this, for the last time, she lifts her hand;
Averts her eyes, and half unwilling drops the brand.
Dryden.

Averters and purgers must go together, as tending all to the same purpose, to divert this rebellious humour and turn it another way.
Burton's Anatomy of Melancholy.

Has thy uncertain bosom ever strove,
With the first tumults of a real love?
Hast thou now dreaded, and now bless'd his sway,
By turns *averse* and joyful to obey? *Prior.*

Averse alike, to flatter or offend;
Not free from faults, nor yet too vain to mend.
Pope.

The corruption of man is in nothing more manifest, than in his *averseness* to entertain any friendship or familiarity with God. *Atterbury.*

Hatred is the passion of defiance; and there is a kind of *aversation* and hostility included in its essence.
South.

The jealous man's disease is of so malignant a nature that it converts all it takes into its own nourishment. A cool behaviour is interpreted as an instance of *aversion*: a fond one raises his suspicions.
Addison.

AVERTI, in horsemanship, is applied to a regular step or motion enjoined in the lessons. In this sense they say pas averté.

AVERY, a place where oats, or provender, are kept for the king's horses.

AVES, birds, the name of Linnæus's second class of animals. See Ornithology and Zoology.

Aves, or the Isle of Birds, 1. One of the Carribee islands, 451 miles south of Porto Rico, with a good harbour for careening ships. It is so called from the great number of birds that frequent it; 2. another lying northward of this. Lat. 15° 0′ N.; and a third near the eastern coast of Newfoundland. Lat. 50° 5′ N.

AVESBURY (Robert), an English historian, of whom little more is known, than that he was keeper of the registry of the court of Canterbury, in the reign of Edward III. and consequently that he lived in the fourteenth century. He wrote Memorabilia gesta magnifici regis Angliæ domini, Edwardi tratii post conquestum, procerumque; tactis primitus quibusdam gestis de tempore patris sui domini Edwardi secundi, quæ in regnis Angliæ, Scotiæ, et Franciæ, ac in Aquitannia et Britannia, non humana sed Dei potentia, contigerunt, per Robertum Avesbury. This history ends with the battle of Poictiers, about A. D. 1356. It continued in MS. till 1720, when it was printed by the industrious Thomas Hearne at Oxford, from a MS. belonging to Sir Thomas Seabright. It is now very scarce.

AVESE, or Avase, a river of the United States of America, in the north-western territory, which runs into the Mississippi, in a south-west direction, about sixty miles above the Ohio. It is navigable in boats for upwards of sixty miles.

AVESNES, or Avennes, an irregular, but well fortified town on the Hepres, in Hainault, on the frontier of France, towards the Netherlands, and three leagues distant from Maubeuge. It is the head of an arrondissement, in the department of the north; population about 3000. In the neighbourhood there are excellent quarries, and several iron foundries and smelting-houses. This was one of the frontier towns retained for a definite period by the allies, in fulfilment of the treaty of Paris in 1815. Long. 4° E. lat. 50° 7′ N.

AVEYRON, or Aveiron, a department of France, having its name from the river, which running from east to west, separates it into two parts. Its boundaries are to the north, the department of the Cantal; north-east, the Lozere; east, the Gard; south-east, Herault; south-west, Tarn, and west, Lot. It corresponds to the ancient province of Rouergue, and is divided into five arrondissements; viz. those of Rodez (which is the capital of the department), Ville Franche, Milhau, St. Afrique, and Espalion. It contains 474 square leagues, equal to about 3740 square miles, and had at the last enumeration 318,047 inhabitants. They paid in direct taxes in 1803, £140,000 sterling. It constitutes, with the department of Lot, the spiritual jurisdiction of the bishop of Cahors. This department is watered by the Aveyron, the Lot, the Tarn, and the Viaur, and is covered with high and craggy mountains. Hence it abounds in game, fish, and wood, and is more adapted for grazing than for the cultivation of grain. Corn and wine, however, are raised in tolerable quantity. The mineral productions are copper, iron, lead, sulphur, alum, coal, and vitriol. There is also a considerable trade in cattle, wool, woollen stuffs, and in excellent cheese. The climate is reckoned fine, though occasionally severe in winter.

AVEZZANO, a town of Naples in Abruzzo. It is built on an almost imperceptible declivity, one mile from the lake of Celano, to which an avenue of poplars leads from the baronnial castle. This edifice stands at a little distance from the town, is square, and flanked with towers; it was erected by Virginio Orsini, to which family this and many other great lordships belonged, before they were wrested from them in times of civil war, and transferred to the Colonnas. Avezzano was founded in 860, and contains 2800 inhabitants, and two religious communities within its walls, which are indeed in a ruinous condition. The houses are in general mean; but there are some large buildings and opulent families of the class of gentlemen, not possessed of fees held in capite.

AUF. Sometimes written oaf and elf. For definition, see Elf.

These when a child haps to be got,
Which after proves an idiot,
When folk perceive it thriveth not;
The fault therein to smother,
Some silly doating brainless calf,
That understands things by the half,
Says, that the fairy left this *aulf*,
And took away the other. *Drayton.*

AUGA, Auge, or Agea, in fabulous history, the daughter of Aleus, king of Tegea, by Neæra, she was ravished by Hercules, and brought forth a son, whom she left in the woods to conceal her

amors from her father; but the child was preserved, and was named Telephus. When Aleus was informed of his daughter's shame, he delivered her to Nauplius to be put to death; but instead of executing the father's cruel purpose, Nauplius gave Auga to Teuthras, king of Mysia, who, having no children of his own, adopted her as his daughter. The dominions of Teuthras being soon after invaded by an enemy, he promised his crown and daughter to the man who could deliver him from the threatening danger; and Telephus having been directed by the oracle to go to the court of Teuthras, if he desired to find his parents, made an offer of his services, which was accepted. Having obtained a victory, he was about to unite himself to Auga, when she rushed from him with secret horror, and the gods sent a serpent to separate them. Auga implored the assistance of Hercules, by whom her son was made known to her, and she returned with him to Tegea. According to Pausanias, Auga was shut up in a coffer with her infant son, and thrown into the sea, where they were preserved and protected by Minerva, till found by king Teuthras.

AUGEAN Codex, Codex Augiensis, a Greek and Latin MS. of St. Paul's Epistles; supposed by Michaelis to have been written in the ninth century, and so called from Augia major, the name of a monastery at Rheinau, to which it belonged. It came, in 1718, into the hands of the celebrated Dr. Bentley, who purchased it for 250 Dutch florins; it is now in the library of Trinity College, Cambridge. This MS. (noted F. in the second part of Wetstein's New Testament), is written in uncial letters, and without accents, not continua serie, as is common with the more ancient copies, but with intervals between the words, and a dot at the end of each. The Greek text is in capitals, and the Latin in Anglo-Saxon letters; whence it is tolerably clear that it must have been written in the west of Europe, where that formation of the Latin letter was in general use between the seventh and twelfth centuries. The MS. is defective from the beginning to Romans, iii. 8; and the epistle to the Hebrews is only found in the Latin version.

AUGEAS, in fabulous history, king of Elis, famed for his stable, which contained 3000 oxen, and had not been cleaned for thirty years. Hercules was desired to clear away the filth in one day; and Augeas promised, if he performed it, to give him a tenth part of the cattle. This task Hercules is said to have executed, by turning the course of the river Alpheus, or, as some say, the Peneus, through the stable, which immediately carried away the dung and filth. Augeas not only refused to stand by his engagement, pretending that Hercules had used artifice, and experienced no labor or trouble, but banished his own son Phyleus from his kingdom, for supporting the claims of the hero. Upon this a war commenced, and Hercules conquered Elis, put Augeas to death, and gave his kingdom to Phyleus. Augeas has been called the son of Sol, because Elis signifies the sun. After his death, the honors usually paid to heroes, were paid to Augeas.

AUGER. Teutonick *Auegher*; Ang.-Sax. Aeg. From the same root we have edge, a tool used in the mechanic arts.

The *auger* hath a handle and bit; its office is to make great round holes. When you use it, the stuff you work upon is commonly laid low under you, that you may the easier use your strength: for, in twisting the bit about by the force of both your hands, on each end of the handle one, it cuts great chips out of the stuff. *Moxon's Mech. Exercises.*

Auger (Athanasius), a learned classic, and professor of rhetoric at Rouen, and vicar-general of Lescar, published a splendid edition of the works of Isocrates, from the press of Didot, Paris, 3 vols. 4to. 1782; and the works of Lysias in 1783, in 2 vols. 4to. afterwards reprinted together in 5 vols. 8vo. He also published translations of the discourses of the Greek Orators of the orations of Cicero, and of harangues taken from the history of Herodotus, Thucydides, and Xenophon. His translations are considered as very correct, but his style is deficient in ease and elegance. He died at Paris in 1792.

AUGES, in astronomy, two points in a planet's orbit, otherwise called apsides, the one denominated the apogee, the other perigee. See Apsis.

AUGETTE, in fortification, the wooden pipe which contains the powder by which a mine is fired.

AUGHT. Ang.-Sax. hwit, a whit or owhit. See Wait.

If I can do it,
By *aught* that I can speak in his dispraise,
She shall not long continue love to him.
Shakspeare.

They may, for *aught* I know, obtain such substances, as may induce the chymists to entertain other thoughts. *Boyle.*

But go, my son; and see, if *aught* be wanting
Among thy father's friends. *Addison's Cato.*

AUGILA, a district and town of Africa, between Siwah and Fezzan. It is included under the dominion of Tripoli, though the subjection is but nominal. This city is of great antiquity, being known in the time of Herodotus. It is about a mile in circumference, but dirty and ill-built; the apartments are dark, there being no aperture for light, except the door. The buildings are also very mean. Dates of excellent quality are produced abundantly. The inhabitants are employed partly in agriculture, but still more in following the caravans which pass through this territory. Long. 22° 25′ E., lat. 29° 35′ N.

AUGITES, among ancient naturalists, a kind of gem, of a pale green color, inferior in value to the topaz. This mineral is crystallised in small six or eight-sided prisms, with dihedral summits. Its colors are green, brown, and black. Internal lustre shining. Uneven fracture. Translucent. Easily broken. It scratches glass. Specific gravity 3·3. Melts into a black enamel. Its composition, according to Klaproth, is forty-eight silica, twenty-four lime, twelve oxide of iron, 8·75 magnesia, five alumina, and one manganese.

AUGMENT, *v.* & *n.*, Augmenta'tion, Augmen'tative, Augmen'ter. Lat. *augmentum*, from *augere*, to increase. To put a smaller quantity to a greater, to enlarge, to make greater, and so to strengthen.

The wretched animal heav'd forth such groans,
That their discharge did stretch his leathern coat
Almost to bursting; and the big round tears
Cours'd one another down his innocent nose
In piteous chase; and thus the hairy fool,
Much marked of the melancholy Jaques,
Stood on the extremest verge of the swift brook
Augmenting it with tears.

Shakspeare. As You Like It.

Heat in a certain degree is very pleasant, which may be *augmented* to the greatest torment.

Locke on the Human Understanding.

I have determined to consult the best writers for explanations real as well as verbal; and perhaps I may at last have reason to say, after one of the *augmenters* of Furetier, that my book is more learned than its author. *Dr. S. Johnson.*

AUGMENTED, a musical term, used in contradistinction to perfect, major, minor, and diminished: thus, an augmented note forms an interval of three chromatic degrees; as C, d-sharp; E, flat, f-sharp; F, g-sharp. See INTERVALS. Augmented intervals become, by inversion, diminished.

AUGMENTATION OF LIVINGS. The shamefully poor livings of many of the inferior clergy of the church of England, attracted the attention of the legislature so long ago as the reign of queen Anne. The governors of the bounty of queen Anne, for the augmentation of the maintenance of the poor clergy, by virtue of several acts of parliament, made for that purpose, are empowered to augment all livings not exceeding £50 per annum; and the number of livings following were certified to be capable of augmentation.

No. of livings.	Rate per annum.	May be augmented.	No. of augmentations.
1071	Under £10	6 times	6426
1467	From £10 to 20	4 ——	5868
1126	—— 20 to 30	3 ——	3378
1049	—— 30 to 40	twice	2098
884	—— 40 to 50	once	884
5597	Total of augmentations to be made by the bounty before these 5597 livings will exceed £50 a-year.		18,654

Mr. Chalmers observes, that computing the clear amount of the bounty to make fifty-five augmentations yearly, it will be 339 years, from 1714 (which was the first year in which any livings were augmented), before all the small livings above certified can exceed £50 per annum; and if even one-half of such augmentations should be made, in conjunction with other benefactors (which is not probable) it will still require 226 years before all the above livings will exceed £50 per annum! This is the more disgraceful, considering the immense incomes enjoyed by the superior clergy.

AUGMENTATION, in heraldry, a particular mark of honor, borne either on an escutcheon, or a canton, as argent, a hand, gules, borne by every baronet not being of higher dignity, as in the annexed example.

AUGSBURG, the second place in the kingdom of Bavaria, both in population and celebrity, was formerly one of the free and imperial cities of Germany. It is situated at the confluence of the Wertach and the Lech. Though less flourishing than in former times, it contains a population of about 30,000 individuals, and is well fortified, in the ancient style, having four principal gates and six smaller ones. Augsburg partakes largely in the manufactures and commerce of the country, and has long been distinguished for its engravings, and its considerable bookselling trade, especially in Catholic literature. By means of its agents and bankers, Augsburg is the general medium of exchange with other countries, as well as a central depot for the Neckar, Tyrolese, Greek and Italian wines. This city is venerable from its antiquity, and interesting from its connexion, both with the civil and ecclesiastical history of Germany. In the diet of the empire, Augsburg was originally called Vindelicia, as being the capital of the Vindelici. When it subsequently fell under the dominion of the Romans, and a colony was settled there by Drusus, it was called Augusta-Vindelicorum and Rhætorum. It is mentioned by Tacitus (Germ. xli.) as a very splendid city of the province of Rhætia. From the Romans it passed to the Alemanni, and subsequently to the Goths and the Franks. Under these its importance declined. It was subsequently in a precarious condition, but revived after Rodolph was elected emperor; several of its former privileges being confirmed by him, and new ones granted.

In 952 the order for the celibacy of the priests in the Catholic church was confirmed by the council of Augsburg; and the extent of its commerce conferred great celebrity upon it in the fourteenth and fifteen centuries. In 1518 the diet was held here for concerting and promoting the crusade against the Turks. Here the celebrated confession of the Protestant faith, drawn up by Luther and Melancthon, was presented in 1530. Here the well-known Interim was published in 1548—and here the convention of Passau was confirmed, and the peace which terminated the religious war was concluded in 1555. It was also fixed upon as the seat of one of the bishops of Bavaria by the concordat of 1817. It has frequently suffered by military force, a calamity which it endured no less than five times in the course of the late revolutionary wars of Europe. Bayer, the astronomer, who first denoted the stars by the letters of the Greek alphabet, was a native of this place. Augsburg is forty miles north-west of Munich. Long. 10° 53′ E., lat. 48° 17′ N. from Greenwich.

AUGSBURG, a secularised bishopric of Germany, now forming part of the kingdom of Bavaria. It took its name from the imperial city of Augsburg, and was founded so early as the sixth century. The territory of which it was composed contained 1012 square miles, and lay partly along the banks of the Lech, in the direction of the Tyrol, in the margraviate of Beoegau, and partly beyond the Danube, in the principality of Neuburg. The population was computed

at 86,000, and the total revenue at 500,000 dollars. The only towns of note are Dillingen and Fussen, with eleven market towns, and a number of villages, mostly situated in the northern part of the bishopric, which is by far the most fruitful and populous. The chapter was composed of forty prebendaries, each of whom had a salary of from 1000 to 1700 florins. The bishopric came into the possession of Bavaria in 1802.

AUGSBURG, or AUGUSTAN, CONFESSION, a celebrated confession of faith drawn up by Luther and Melancthon, on behalf of themselves and other ancient reformers, and presented, in 1550, to the emperor Charles V. at the diet Augusta or Augsburg, in the name of the evangelic body. This confession contains twenty-eight chapters; of which the greatest part is employed in representing, with perspicuity and truth, the religious opinions of the Protestants, and the rest in pointing out the errors and abuses that occasioned their separation from the church of Rome. A civil war followed, that lasted upwards of twenty years, but which only spread the new opinions, as they were then called, instead of extirpating them.

AU'GUR, *v.* & *n.*, AU'GURATE, AUGURA'TION, AU'GURER, AUGU'RIAL, AU'GUROUS, AU'GURY. *Augurium quasi avigerium*, to see; quo modo *aves* se *gererent* in volando, what direction birds take in flying, Vossius. Auguries were also taken from their singing and feeding. Hence it signifies to notice the movements of birds, and thereby to predict, to foretel future events. We now apply the words generally to predictions of the future by means of any signs or tokens.

Oh sir, you are too sure an *augurer*
That you did feare is done.
Shakspeare. Antony and Cleopatra.

What say the *augurs?*——
—They would not have you stir forth to-day:
Plucking the entrails of an offering forth,
They could not find a heart within the beast.
Shakspeare.

Thy face and thy behaviour,
Which, if my *augury* deceive me not,
Witness good breeding. *Id.*

Calchas, the sacred seer, who had in view
Things present and the past, and things to come foreknew:
Supreme of *augurs.* *Dryden's Fables.*

The pow'rs we both invoke
To you, and yours, and mine, propitious be,
And firm our purpose with an *augury.* *Dryden.*

She knew, by *augury* divine,
Venus would fail in the design. *Swift.*

So fear'd
The fair-man'd horses, that they flew back, and their chariots turn'd,
Presaging in their *augurous* hearts the labours that they mourn'd. *Chapman's Iliad.*

He deluded many nations in his *augurial* and extispicious inventions, from casual and uncontrived contingencies divining events succeeding.
Brown's Vulgar Errours.

AUGUR, in Roman antiquity, an officer appointed to foretel future events, by the chattering, flight, and feeding, of birds. There was a college or community of them, consisting originally of three members with respect to the three Luceres, Rhamnenses, and Tatienses; afterwards the number was increased to nine, of whom four were patricians and five plebeians. They bore an augural staff, as the ensign of their authority; and their dignity was so much respected, that they were never deposed, nor any substituted in their place, though they should have been convicted of the most enormous crimes.

AUGURALE, a place in a camp where the general took auspicia. This answered to the Auguratorium in the city. Augurale is also used in Seneca for the ensign or badge of an augur, as the lituus.

AUGURATORIUM, or AUGURACULUM, a building on the Palatine mount, where public auguries were taken.

AUGURELLO (John Aurelio), an Italian poet, born at Rimini, in 1441. He was professor of the belles letters at Treviso, at which place he died in 1524. He wrote several pieces, but his chief work was a Latin poem, entitled Chrysopœia, or the art of making gold. He dedicated his poem to Leo X. upon which the pontiff presented him with a large empty purse, and said, 'that as he could make gold he best knew how to fill it.'

AUGURY, is more fully defined the art of foretelling future events, by observations taken from the chattering, singing, feeding, and flight, of birds. It is also used in a more general signification, as comprising all the different kinds of divination. To make his observations, the augur commonly seated himself on a high tower, with his face towards the east, the north on his left hand, and the south on his right. He divided the face of the heavens into four parts, with a crooked staff, after which he sacrificed to the gods, while he covered his head with his vestment. The augurs drew omens from five different things: 1. The phenomena of the heavens, as thunder, lightning, comets, &c. 2. The chirping of birds, as already mentioned: 3. The eagerness or indifference of the sacred chickens in eating the bread which was thrown to them, they interpreted lucky or unlucky: 4. Quadrupeds crossing or appearing in some unfrequented place: 5. From different casualties, which were called dia, such as spilling salt on a table, or wine upon clothes, hearing strange noises, stumbling or sneezing, meeting a wolf, hare, fox, or pregnant bitch. The sight of birds on the left hand was always considered as a lucky object, and the words sinister lævus, though commonly imagined to be terms of ill luck, were uniformly used by the augurs in an auspicious sense.

Augury was a very ancient superstition. We know from Hesiod, that husbandry was in part regulated by the coming or going of birds; and most probably it had been in use long before his time, as astronomy was then in its infancy. In process of time, these animals seemed to have gained a greater and very wonderful authority, till at last no affair of consequence, either of private or public concern, was undertaken without consulting them. They were looked upon as the interpreters of the gods; and those who were qualified to understand their oracles were held among the chief men in the Greek and Roman

States, and became the assessors of kings, and even of Jupiter himself. However absurd such an institution as a college of augurs may appear in our eyes, yet, like all other extravagant institutions, it had in part its origin from nature. When men considered the wonderful migration of birds, how they disappeared at once, and appeared again at stated times, and could give no guess where they went, it was not unnatural to suppose, that they retired somewhere out of the sphere of this earth, and perhaps approached the ethereal regions, where they might converse with the gods, and thence be enabled to predict events; at least it was not unnatural for a superstitious people to believe this as soon as some impostor was impudent enough to assert it. Add to this, that the disposition in some birds to imitate the human voice, must contribute much to the confirmation of such a doctrine. This institution of augury seems to have been much more ancient than that of aruspicy; for we find many instances of the former in Homer, but not a single one of the latter, though frequent mention is made of sacrifices in that author. Thus it is probable that natural augury gave rise to religious augury, and this to aruspicy, as the mind of man makes a a very easy transition from a little truth to a great deal of error. A passage in Aristophanes gave the hint for these observations. In the comedy of the birds, he makes one of them say, 'The greatest blessings which can happen to you, mortals, are derived from us; first, we show you the seasons, viz. spring, winter, autumn. The crane points out the time for sowing, when she flies with her warning notes into Egypt; she bids the sailor hang up his rudder and take his rest, and every prudent man provide himself with winter garments. Next the kite appearing, proclaims another season, viz. when it is time to shear his sheep. After that the swallow informs you when it is time to put on your summer clothes. We are to you (adds the chorus) Ammon, Dodona, Apollo: for, after consulting us, you undertake every thing; merchandise, purchases, marriages, &c.' Now, it seems not improbable, that the same transition was made in the speculations of men, which appears in the poet's words; and that they were easily induced to think, that the surprising foresight of birds, as to the time of migration, indicated something of a divine nature in them.

AUGUST. Lat *Augustus*. Said to be so called from the thing signified being consecrated by augury, and on that account was sacred and venerable.

August, Augustus, Lat. The name of the eighth month from January, inclusive. August was dedicated to the honor of Augustus Cæsar, because in the same month he was created consul; thrice triumphed in Rome; subdued Egypt to the Roman empire; and made an end of civil wars; being before called Sextilis, or the sixth from March. August was, by our Saxon ancestors (who, like the modern French, gave their months significant names), called weod-monath, i. e. weed-month, on account of the great plenty of weeds at that season. It answers to part of the two last months in the year in the new French calendar; comprehending the seventeen last days of Thermidor, and the fourteen first days of Fructidor.

AUGUSTA, a considerable and flourishing town of Georgia, and the present seat of government. It is pleasantly situated in Richmond county, on the south-west side of Savannah river, upon a beautiful plain, five miles in length, and one and a half in breadth. It is regularly laid out, the streets intersecting one another at right angles, and contains about 250 dwellings. The public buildings are, a church; an academy; a government-house, where the governor, secretary of state, and other public officers transact their business; a market-house; a new stone jail; a spacious building, where the courts of justice are administered, and the legislature hold their sessions; and three ware-houses, large enough to contain 10,000 hogsheads of tobacco. The academy generally contains between eighty and ninety students, who are under the direction of two tutors and a professor of oratory. It is governed by a board of trustees, who are a body corporate in law. The funds belonging to this institution are considerable, consisting of lands, houses, and money, to the amount of several thousand pounds sterling. From the advantages which it enjoys, it probably will, on a future day, become a place of considerable note in the literary world. Opposite the centre of the town, a large wooden bridge has been erected across the Savannah, which opens a commodious and easy communication with South Carolina; it is nineteen feet wide, and between 700 and 800 in length. It has already been of considerable advantage to the town, by inducing the planters in the upper part of South Carolina to bring their produce to this market. It is about 236 miles from the mouth of Savannah river, including its meanders, 120 N.N.W. of Savannah, and 746 S. W. S. of Philadelphia. Population upwards of 4000. Lat. 33° 19′ N., long. 80° 46′. W.

Augusta, a county of Virginia, lying partly east and partly west of the North Mount, a ridge of the Alleghany. It is fertile, and contains upwards of 12,000 inhabitants, including slaves. It has a remarkable cascade, called Falling Spring.

Augusta, in antiquity, a title given to the Roman empresses, and frequently to the mothers and daughters of the emperors, who had been empresses.

Augusta, in ancient geography, the name of various ancient cities, mostly named after Augustus or his successors: such as,

1. Augusta, a city and island in the Adriatic sea, called also Austa, on the coast of Dalmatia, near Ragusa, subject to Venice. Long. 17° 50′ E., lat. 42° 35′ N.

2. Augusta Acilia, a town in Bavaria, now called Azelburg.

3. Augusta Ausciorum, a town of Aquitania, originally called Climberum, which name it afterwards resumed. In the middle age, however, it took the name of the people, Ausci; and is now called Auch.

4. Augusta Braccarum, a city of Portugal, now called Braga.

5. Augusta Drusi, a town in Suabia, now called Memmingen.

6. Augusta Emerita, a town of Lusitania,

on the Anas, capital of the province; a colony of the Emeriti, now called Merida, in Spanish Estremadura.

7 and 8. AUGUSTA PRÆTORIA; 1. a town and colony of Gallia Cisalpina, the capital of the Salassi; seated at the foot of the Alps Graiæ, on the Duria; now called Austa. 2. another in Transylvania; now called Cronstadt.

9. AUGUSTA RAURACORUM, a town of Gallia Belgica, six miles east from Basil; now called Augst. From the ruins, which are still to be seen, it appears to have been a considerable colony.

10. AUGUSTA ROMANDUORUM, the ancient name of Luxemburg.

11. AUGUSTA SUESSONUM, a town of Gallia Belgica, on the Axona; with great probability supposed to be the Noviodunum Suessonum of Cæsar; now called Soissons.

12. AUGUSTA TAURINORUM, a town of the Taurini, at the foot of the Alps, where the Duria Minor falls into the Po; now called Turin.

13. AUGUSTA TIBERII, a city of Bavaria; now called Ratisbon.

14. AUGUSTA TREBA, a town of the Æqui, near the springs of the river Anio in Italy; now called Trevi, in Umbria.

15. AUGUSTA TREVIRORUM, a town of the Treviri; now called Trieres or Treves.

16. AUGUSTA TRICASSIUM, the ancient name of Troceres.

17. AUGUSTA TRINOBANTUM, the name given by the Romans to London.

18. AUGUSTA VEROMANDUORUM, a town of ancient Gaul; now St. Quintin.

AUGUSTA VINDELICORUM, a town of the Licates on the Licus; styled by Tacitus a noble colony of Rhætia; now called Augsburg, in Suabia. See AUGSBURG.

AUGUSTA HISTORIA, in literature, the history of the Roman emperors, from Adrian to Carinus; that is, from A. D. 157 to 285, composed by six Latin writers, viz. Ælius Spartianus, Julius Capitolinus, Ælius Lampridius, Vulcatius Gallicanus, Trebellius Pollio, and Flavius Vopiscus.

AUGUSTALIS PRÆFECTUS, a title peculiar to a Roman magistrate who governed Egypt, with a power much like that of a proconsul in other provinces.

AUGUSTAN, relating to Augustus, or Augusta.

AUGUSTAN CONFESSION. See AUGSBURG.

AUGUSTICUM, in writers of the middle age, a largess of an emperor to the people or soldiery.

AUGUSTEUM MARMOR, in the natural history of the ancients, a name given to the common green and white marble, so frequent in use with us for tables, &c. and called by our artificers Egyptian marble.

AUGUSTIA, an ancient town in Wallachia, now called Kusty.

AUGUSTIN (St.), the capital town of the province of East Florida, North America, is situated on the Atlantic, on a peninsula, consisting of a narrow strip of land. It is of an oblong figure, intersected by four streets, which cut each other at right angles. It is reckoned a healthy place, and is well supplied with fresh water. It has a good port, although the breakers, at its entrance, have formed two channels, whose bars have only eight feet of water each. It has a strong castle for its defence; a good parish church, and two hospitals, one for the garrison of troops, and another for the community. It was burned by Sir Francis Drake, in 1586, and by captain Davis, with the Buccaniers, in 1685; but was immediately after rebuilt. In 1702 it was besieged by the English, who, not being able to take the castle, burned and destroyed the town. In 1714 it was again unsuccessfully attacked by the English under general Oglethorpe. Long. 81° 40′ W., lat. 29° 58′ N.

AUGUSTINE, a cape of South America, in Brasil, on the Atlantic, 300 miles north-east of All-Saints' Bay. Long. 35° 4′ W., lat. 8° 30′ S.

AUGUSTINE, or AUSTIN (St.), the first archbishop of Canterbury, was originally a monk in the convent of St. Andrew at Rome, and educated under St. Gregory, afterwards Pope Gregory I. by whom he was despatched into Britain, with forty other monks, about A. D. 596, to convert the English to Christianity. He landed in the isle of Thanet, and having sent some French interpreters to king Ethelbert, with an account of the errand on which he came, the king gave him leave to convert as many of his subjects as he could, and assigned his place of residence at Doroverum, since called Canterbury; here the king himself was converted; whose example had a powerful influence in promoting that of his subjects. Austin now despatched a priest and a monk to Rome, to acquaint the pope with the success of his mission, and to desire his resolution of certain questions. These men brought back with them a pall and several books, vestments, utensils, and ornaments for the churches; with directions to Augustine concerning the settling of episcopal sees in Britain; ordering him not to pull down the idol temples, but to convert them into Christian churches; only destroying the idols, and sprinkling the place with holy water, that the natives, by frequenting the temples they had been always accustomed to, might be the less shocked at their entrance into Christianity. Augustine resided principally at Canterbury, which thus became the metropolitan church of England; and having established bishops in several of the cities, he died A. D. 607. The popish writers ascribe several miracles to him. The observation of his festival was first enjoined in a synod held under Cuthbert, archbishop of Canterbury, and afterwards by the pope's bull in the reign of Edward III.

AUGUSTINE (St.), a famous father of the church, was born at Thagaste, in Numidia, A. D. 354. His father, a burgess of that city, was called Patricius; and his mother, Monica, who being a woman of great virtue, instructed him in the principles of Christianity. In his early youth he was in the rank of the catechumens; and falling dangerously ill, earnestly desired to be baptized, but the violence of the distemper ceasing, his baptism was delayed. His father, who was not yet baptised, made him study at Thagaste, Madaura, and afterwards at Carthage. Augustine having read Cicero's books of philosophy, applied himself to the study of the scriptures; but suf-

fered himself to be seduced by the Manicheans. At the age of nineteen he returned to Thagaste, taught grammar, and frequented the bar: he afterwards taught rhetoric at Carthage with applause. The insolence of the scholars at Carthage made him take a resolution to go to Rome, though against his mother's will. Here also he had many scholars; yet he quitted Rome, settled at Milan, and was chosen professor of rhetoric in that city. Here he had opportunities of hearing the sermons of St. Ambrose, which, together with the study of St. Paul's epistles, and the conversion of two of his friends, determined him to retract his errors, and quit the sect of the Manicheans: this was in the thirty-second year of his age. In the year 386 he retired to the house of a friend of his, named Verecundus, where he seriously applied himself to the study of the Christian religion, to prepare himself for baptism, which he received at Easter, in 387. He went to Africa about the end of 388; and having obtained a garden-plot without the walls of the city of Hippo, he associated himself with eleven other persons of eminent sanctity, who distinguished themselves by wearing leathern girdles, and lived there in a monastic way for three years, exercising themselves in fasting, prayer, study, and meditation, day and night; from hence sprung up the Augustine friars, or eremites, of St. Augustine, the first order of mendicants. About this time, or before it, Valerius, bishop of Hippo, against his will, ordained him priest: nevertheless, he continued to reside in his little monastery, with his brethren, who, renouncing all property, possessed their goods in common. Valerius, who had appointed St. Augustine to preach in his palace, allowed him to do it in his presence, contrary to the custom of the churches in Africa. He explained the creed, in a general council of Africa, held in 393. Two years after, Valerius, fearing he might be preferred to be bishop of another church, appointed him his colleague, and caused him to be ordained bishop of Hippo, by Megalus, bishop of Calame, then primate of Numidia. St. Augustine died the twenty-eighth day of August, 430, aged seventy-six, having had the misfortune to see his country invaded by the Vandals, and the city where he was bishop besieged for seven months. His works make ten volumes; the best edition of them is that of Maurin, printed at Antwerp, in 1700.

Augustine (Anthony), an eminent prelate, born at Saragossa, in Spain. He was employed by the pope on an embassy to England, in 1554; and afterwards assisted at the council of Trent. In 1574 he was preferred to the archbishopric of Tarragona. So great was his charity, that at his death, in 1586, he did not leave what was sufficient to defray his funeral expences. He wrote several treatises on law, and on medals, in the Spanish language, which were printed in 1587.

Augustine (Leonard), or Agostini, an Italian antiquary, was a native of Sienna, and flourished in the seventeenth century. He compiled an elaborate work on ancient gems, which was first published in 1657, in two volumes, 4to. and again in 1707, four volumes, 4to. A Latin translation of this work, by Gronovius, was published at Amsterdam in 1685, and at Franeker in 1694.

Augustine, Mount, St. a remarkable island within the entrance of Cook's islet, about six miles from its western shore. It was seen by Capt. Cook, who was doubtful whether it did not belong to the continent. It was since visited, in 1794, by Mr. Puget, who, in the Chatham, sailed round the world, in company with Vancouver. He states it to be about nine leagues in circuit.

Augustine, St. a port on the coast of Labrador, opposite St. John's Bay, Newfoundland. About two miles south-west runs a chain of small islands, called St. Augustine's Chain, about long. 58° 50′ west, and lat. 51° 11′ north.

Augustine's Square, St. a number of small islands in the Gulf of St. Lawrence, Labrador, reaching from Shecatica bay on the north-east, to Outer Island on the south-west.

AUGUSTINIANS, divines who maintain, on the authority of St. Augustine, that grace is effectual from its nature, absolutely and morally, and not relatively and gradually. They are divided into rigid and related.

Augustinians, or Augustins, an order of religious; so called from St. Augustine, whose rule they observe. The Augustins, or Austin friars, were originally hermits, whom pope Alexander IV. first congregated into one body, under their general Lanfranc, in 1256. Soon after, this order was brought into England, where they had about thirty-two houses at the time of their suppression. The Augustins are clothed in black, and make one of the four orders of mendicants. From these arose others, under the denomination of bare-foot Augustins, Minorites, or Friars minor. There are also canons regular of St. Augustine, who are clothed in white, excepting their cope, which is black. At Paris they are known under the denomination of religious of Genevieve; that abbey being the chief of the order. There are also nuns and canonesses, who observe the rules of St. Augustine.

AUGUSTINUS, a work of Jansenius, bishop of Ypres, in three volumes, folio, printed at Louvain in 1540; the first whereof contains a discourse against Pelagianism; and the second, treatises on reason; the use of authority in theological matters; the state of innocence; fall of nature by sin; grace, &c. From these treatises the five famous propositions of the Jansenists were collected.

AUGUSTOBONA, a city of the Tricasses, in ancient Gaul, from whom it was afterwards called Tricasses, and Trecassæ; and still farther corrupted to Thracæ, or Treci; whence its modern name Troyes.

AUGUSTOBRIGA, an ancient town of Spain, now called Medina Celi.

AUGUSTODUNUM, the capital of the Ædui, where there was a famous academy for the education of youth; now called Autun.

AUGUSTOMAGUS, an ancient town of Gallia Belgica, now called Senlis, in the Isle of France. Long. 2° 40′ E, lat. 49° 12′ N.

AUGUSTONIMETUM, a town of ancient Gaul, now Nevers.

AUGUSTORITUM, according to some au-

thors the capital of the Pictones, afterwards called Pictavi; now Poictiers. But by Antonine's Itinerary from Burdigala to Argantomagus (or Argenton, as it is interpreted by many), it can be no other but the capital of the Lemovices, now Limoges, situated between Vesunna or Petrocorii, or Perigueux, and Argantomagus. Long. 1° 22′ E. lat. 45° 52′ N.

AUGUSTALIA, in Roman antiquity, a festival on which games (Augustales ludi) were celebrated, in Rome, annually, on the day of the return of Augustus Cæsar, at the conclusion of his wars. It was instituted ann. U. C. 735, and kept on the IVth ides (12th) of October. After his decease, the tribunes of the people asked permission to celebrate the festival at their own private expense.

AUGUSTALES Sodales, priests instituted by Tiberius after the apotheosis of Augustus Cæsar, to perform the service of the new god. One and twenty of the noblest Romans were chosen by lot to this office; and among the first members were Tiberius himself, Drusus, Claudius, and Germanicus.

AUGUSTOWO, or Augustow, a town in the department of Lomza, Poland. It contains 2000 inhabitants, and has a staple for salt, fifty-six miles north-west of Rielsk.

AUGUSTULUS, otherwise called Flavius Romulus Augustus, was the son of Orestes, and the last Roman emperor. Being subdued by Odoacer, the king of the Heruli, he abdicated the throne, in 475, and thus put an end to the western empire, after it had subsisted 522 years from the battle of Pharsalia. This prince is represented on some medals, as in the annexed figure; inscription, D. N. ROMULUS AUGUSTULUS. P. F. AUG.

AUGUSTUS, an appellation conferred upon Cæsar Octavianus. See Octavianus, and Rome. The obscure name of Octavianus, Mr. Gibbon observes, he derived from a mean family in Aricia. It was stained with the blood of the proscription; and he was desirous, had it been possible, to erase all memory of his former life. The illustrious surname of Cæsar he had assumed as the adopted son of the dictator; but he had too much sense either to hope to be confounded, or to be compared with that extraordinary man. It was proposed in the senate, to dignify their minister with a new appellation; and after a very serious discussion, that of Augustus was chosen among several others, as being the most expressive of the character of peace and sanctity which he uniformly affected. Augustus was therefore a personal, Cæsar a family, distinction. The former should naturally have expired with the prince on whom it was bestowed; and however the latter was diffused by adoption and female alliance, Nero was the last who could allege any hereditary claim to the honors of the Julian line. But at his death, the practice of a century had inseparably connected those appellations with the imperial dignity, and they have been preserved by a long succession of emperors, Romans, Greeks, Franks, and Germans, from the fall of the republic to the present time. A distinction was, however, soon introduced. The sacred title of Augustus was always reserved for the monarch; the name of Cæsar was more freely communicated to his relations; and from the reign of Adrian, at least, was appropriated to the second person in the state, who was considered as the presumptive heir of the empire.

Augustus Fort, a small fortress of Scotland, in Invernesshire, at the head of Lochness, between the rivers Taarf and Oich. The name of this fort in Erse is Killchuimin, or the burial place of the Cummins. It lies on the road to the Isle of Sky.

AU-GUY-L'AN-NEUF, or Auguillanneuf. See Misleto.

AVIA. See Aquila.

AV'IARY. Lat. *avis*, a bird. A place where birds are kept.

In *aviaries* of wire, to keep birds of all sorts, the Italians bestow vast expence; including great scope of ground, variety of bushes, trees of good height, running waters, and sometimes a stove annexed, to contemper the air in the winter. *Wotton's Architecture.*

Look now to your *aviary*; for now the birds grow sick of their feathers. *Evelyn's Kalendar.*

Aviary is now used for any place in which birds are kept, but more particularly where the beauty of their plumage or the sweetness of their song has been the cause of their confinement. Lænius Strabo, an opulent and luxurious Roman, was the first who introduced aviaries upon an extensive scale, and erected a splendid one at his villa near Brundusium. Varro, however, outshone all in his ornithological buildings, and elegant and spacious aviary, at his country house near Casinum. With evident satisfaction, he relates, that in his days there were two sorts of aviaries, one for containing birds intended for the table, and the other the birds which were kept for their song or plumage. The former sort were built entirely for use, but the latter were often beautiful pavilions, with an apartment or saloon in the centre, for the company to sit in and enjoy the melody of the feathered songsters. Aviaries have never, in modern times, equalled the splendor and extent of those of the Romans; yet the aviary at Woburn Abbey, the seat of the Duke of Bedford, is of great extent and value; and Malmaison, one of the palaces of the late Emperor Napoleon, contains an aviary at once large, elegant, and well stocked with birds from all quarters of the globe.

AVICENA, Avicenes, or Avicenna, the prince of Arabian philosophers and physicians, was born at Assena, a village near Bokhara. His father was a Persian, and had married at Bokhara. The first years of Avicenna were devoted to the study of the Koran and the Belles Lettres. His progress was so rapid, that when he was but ten years old, he was perfectly acquainted with the most hidden senses of the Koran. Abu-Abdoullah at that time professed philosophy at Bokhara with great reputation. Avicenna studied logic under him; but, disgusted with the slow manner of the schools, he set about studying alone, and read all the authors that had written on philosophy, without any other

help than that of the commentators. After reading the first six propositions of Euclid, he proceeded alone to the last, having made himself perfect master of them, and treasured up all of them equally in his memory. Endued with an extreme avidity for all the sciences, he did not neglect the study of medicine. Persuaded that this divine art consists as much in practice as in theory, he sought all opportunities of seeing the sick; and afterwards confessed that he had learned more from experience than from all the books he had read. He was now in his sixteenth year, and was already celebrated as the light of his age. He resolved at this age to resume his philosophical studies, which medicine had made him neglect; and he spent a year and a half without ever sleeping a whole night together. If he felt himself oppressed by sleep, or exhausted by study, a glass of wine refreshed his wasted spirits, and gave him new vigor. At the age of twenty-one he conceived the bold design of incorporating, in one work, all the objects of human knowledge; and carried it into execution in an Encyclopædia of twenty volumes, to which he gave the title of the Utility of Utilities; an immense labor for one man at such a period. Several great princes had been taken dangerously ill, and Avicena was the only one that knew their ailments and cured them. His reputation increased daily, and all the kings of Asia desired to retain him as their physician. Mahmud, the first sultan of the dynasty of the Samanides, was then the most powerful prince of the east. Imagining that an implicit obedience should be paid by all manner of persons to the injunctions of his will, he wrote a haughty letter to Mamun sultan of Kharazm, ordering him to send Avicena to him, who was at his court, with several other learned men. Philosophy, the friend of liberty and independence, looks down with scorn on the shackles of tyranny. Avicena, accustomed to the most flattering distinctions among the great, could not endure the imperious manner of Mahmud's inviting him to his court, and refused to go. But the sultan of Kharazm, who dreaded his resentment, obliged the philosopher to depart, with others, whom that prince had demanded to be sent to him. Avicena pretended to obey; but, instead of repairing to Gazna, he took the rout of Georgian. Mahmud, who had gloried in the thoughts of keeping him at his palace, was greatly irritated at his flight. He despatched portraits, done in crayons, of this philosopher to all the princes of Asia, with orders to have him conducted to Gazna, if he appeared in their courts. But Avicena had fortunately escaped the most diligent search after him. He arrived in the capital of Georgian, where, under a disguised name, he performed many admirable cures. Cabous then reigned in that country. A nephew whom he was extremely fond of, having fallen sick, the most able physicians were called, and none of them were able to know his ailment, or give him any ease. Avicena was at last consulted. So soon as he had felt the young prince's pulse, he was confident that his illness proceeded from a passion which he durst not avow. Avicena commanded the person who had the care of the different apartments of the palace to name them all in their respective order. A more lively motion in the prince's pulse, at hearing one of these apartments mentioned, betrayed a part of his secret. Avicena then ordered the keeper to name all the female slaves that inhabited that apartment. At the name of one of these beauties the young Cabous could not contain himself; an extraordinary vehemence of his pulse is said to have completed the discovery of what he in vain desired to conceal. Avicena, now fully assured that this slave was the cause of the prince's illness, declared that she alone had the power to cure him. The sultan's consent was necessary, and he of course was curious to converse with his nephew's physician; but had scarce seen him, when he knew in his features those of the portrait sent him by Mahmud: still Cabous, far from forcing Avicena to repair to Gazna, retained him for some time, and heaped honors and presents on him. The philosopher passed afterwards into the court of Nedjmeddevle, sultan of the race of the Bouides. Being appointed first physician to that prince, he found means to gain his confidence to so great a degree that he raised him to the post of grand vizier. This dignity, however, he did not long enjoy. Too great an attachment to pleasure made him lose at once his post and his master's favor. From that time Avicena felt all the rigors of adversity, which he had thus brought upon himself. He wandered about as a fugitive, and was often obliged to shift the place of his habitation to secure his life from danger. He died at Hamadan, aged fifty-eight, A. D. 1036, and in the year of the Hegira 428. No one composed with greater facility than Avicena. He is said to have written fifty pages a-day without fatigue. Until the twelfth century he was preferred for philosophy and medicine to all his predecessors. His works were the only writings in vogue, even in Europe. The following are their titles: 1. Of the Utility and Advantage of Science, 20 books. 2. Of Innocence and Criminality, 2 books. 3. Of Health and Remedies, 18 books. 4. On the means of preserving Health, 3 books. 5. Canons of Physic, 14 books. 6. On Astronomical Observations, 1 book. 7. On Mathematical Sciences. 8. Of Theorems, or Mathematical and Theological Demonstrations, 1 book. 9. On the Arabic Language, and its Proprieties, 10 books. 10. On the Last Judgment. 11. On the Origin of the Soul, and the Resurrection of Bodies. 12. Of the end we should propose to ourselves in Harangues and Philosophical Argumentations. 13. Demonstration of collateral Lines in the Sphere. 14. Abridgment of Euclid. 15. On Finity and Infinity. 16. On Physics and Metaphysics. 17. On Animals and Vegetables, &c. 18. Encyclopædia, 20 volumes.

AVICENNIA, or Avicenia, eastern anacardium, a genus of the angiospermia order, and didynamia class of plants; ranking in the natural method under the fortieth order, personatæ. The calyx is quinquepartite; the corolla is bilabiate; the upper lip squared; the capsule is leathery, romb-like, and monospermous. There are two species, viz. 1. A. nitida, the shining, eastern anacardium; and, 2. A. tomentosa, the downy

anacardium. The seeds are said to be the Malacca beans formerly kept in the shops, the kernels of which were eaten as almonds. Others say that the plant producing the Malacca bean is rather the bontia germinans.

AVICH, Loch, anciently called Loch-luina, a lake of Scotland, in the parish of Dalavich, in Argyllshire. Mr. Campbell, in his Statistical Report, says it is 'a beautiful sheet of water, of a regular triangular form, about eight miles in circumference, full of trouts; having a castle and several islands, the resort of gulls, cranes, water eagles, and wild ducks. Near this lake lay the scene of an ancient Celtic poem, called Cathluina, or the conflict of Luina; and in the lake is an island, the scene of another poem, called Laoi Fraoich, or the death of Fraoch. Many places,' he adds, 'in this neighbourhood are still denominated from Ossian's heroes.'

Avich, a river rising from the above-mentioned lake, and running through a wood, and part of the parish of Dalavich, to which it gives names, and at last falls into Lochow.

AVID'ITY, } Lat. *avidus;* from *aveo*, I
Avid'iously. } desire earnestly. Covetousness, greediness, insatiable appetite.

For nothing is more *auydyously* to be desired, than is the sweet peace of God.

Bale's Image of both Churches, part i.

No writings would have been received with such *avidity* and respect as these.

Paley's Evidences.

AVIENUS, Rufus Festus, a Latin poet of the fourth century. He translated the Phænomena of Aratus, the description of the earth by Dionysius, Æsop's Fables, &c. An edition of his works was printed at Paris in 1590, and again in 1731.

AVIGATO Pear. See Laurus.

AVIGLIANO, a small town of Piedmont in Italy, seven miles west of Turin.

AVIGNON, a city of France, in the department of Vaucluse, on the banks of the Rhone, 168 leagues from Paris. Before the revolution it was subject to the Pope; and the residence of several of them in it had rendered it considerable. This occasioned many of the natives to be enemies to the new government; especially after the Convention had abolished the establishment of the Roman Catholic religion in France; and was the cause of much bloodshed. It is now, however, completely annexed to France. Near the Rhone there is a large rock, within the circumference of the walls, upon which is a platform, whence may be had a prospect of the whole city and its environs. Its circumference is somewhat more than three miles. Its manufactories are silks, saltpetre, oil of vitriol, and aqua-fortis. Its products, wine, brandy, almonds, olives, oil, saffron, truffles, corn, and wool; and it contains a well-regulated lunatic asylum, and an hospital of invalid soldiers which lodges 1500 in-pensioners. Before the French revolution its population exceeded 30,000; but in the latest census they are 23,311. It is the seat of a bishop, whose diocese contains the departments of Vaucluse and the Gard; and, in 1803, an university, or Lyceum, was established here.

Avignon was ceded by Philip III. of France to the see of Rome in 1273. On the decease of Benedict XI. the papal court was transferred here; and the six successive pontiffs, Clement V. John XXII. Benedict XII. Clement VI. Innocent VI. and Urban V. made it their only abode. The entreaties of Petrarch were often addressed to the four last. He was well acquainted with Avignon, which had been the residence of his father; and the celebrated fountain of Vaucluse, but a short distance from its walls, has been immortalised by the complaints of his unreturned love. The tomb of Laura is still shown in the church of the Cordeliers; and her husband, Hugh de Sade, sleeps there by her side. He speaks of it as the sink of vice and corruption, as an object of universal hatred and contempt, as barbarous, and as the mystic Babylon. Yet for seventy years, from 1309, it continued to be the seat of the holy see; and after the death of Gregory XI. who returned once more to the Vatican, on the commencement of the great schism of the west, during forty years more, the two rival pontiffs of the day thundered their respective excommunications against each other from the banks of the Rhone and of the Tiber. The election of Martin V. terminated the distraction, and Rome once again became the single metropolis of the papacy. During its subjection to the papal see, Avignon was several times seized by France: once in 1662, when the French ambassador at Rome had been insulted by the Corsican guards; again in 1688; and again in 1733, on account of the loss occasioned to the French revenue by smuggling. Another instance of seizure happened in 1768, when pope Clement XIII. threatened to excommunicate the duke of Parma, and took the Jesuits under his protection; it was not given back till 1774, by which time the papal chair had changed its occupant. The Count de Grignan, the husband of Madame de Sevigné's daughter, held it as viceroy for two years, and many of Madame de Sevigné's letters are addressed to Avignon.

Avignon Berry, the fruit of a species of lyceum, which grows plentifully near Avignon and in other parts of France. The berry is somewhat less than a pea; its color is green, approaching towards a yellow; and it is of an astringent and bitter taste. It is much used by the dyers, who stain a yellow color with it; and by the painters, who also make a fine golden yellow of it.

AVILA, a city of Spain in Old Castile, seated on an eminence on the banks of the river Adaja, and in sight of the mountains of Pico. It is fortified both by nature and art, having had a wall 9075 feet in circumference, adorned with lofty towers and handsome gates. The houses are generally good and stately. It has an university, and a considerable bishopric; besides a cathedral, which has eight dignitaries and forty canons and minor canons. It stands in the middle of a large plain, surrounded with mountains, and covered with fruit-trees and vineyards. There is likewise a manufacture of cloth.

Avila, or Aviles, a town of Spain, in Asturias, on the Bay of Biscay, eight miles south of Cape de Pinas, and twenty-five north of Oviedo.

Avila (Giles Gonzales,) a Spanish historian. He went to Rome for his education, and when he returned to his own country obtained a rich benefice, and was appointed historiographer to the king. He wrote a Treatise on the Antiquities of Salamanca, also the Theatre of the Churches of India, and other works. He died in 1658.

AVILA (Louis d'), a Spanish gentleman sent by Charles the Fifth, as ambassador to the popes Paul IV. and Pius V. and was afterwards a commander at the siege of Metz. He wrote historical memoirs of the wars of Charles V. against the Protestants of Germany, entitled 'Los Commentarios de la Guerra del Emparador Carlos V. contra los Protestantes de Alemania;' first printed in 1546, and afterwards translated into French and Latin. He also wrote Memoirs of the War in Africa.

AUJILAH, an oasis, in the great Sahrà, or Lybian desert, in lat. 29° 30′ N. and long. 22° 30′ E. through which Mr. Hornemann passed in 1798. He says, there are three towns in the territory of Aujilah, the capital of that name. Mojabrah, and Meledilah; the latter are near each other, and both about four hours distant from Aujilah. That city is about a mile in circumference; ill built, though of stone, dirty, and wretched. Mojabrah, is smaller but more populous; its inhabitants are principally engaged in commerce, as those of Meledilah are in agriculture. The women are skilful weavers, and export their cloths to Fezzàn. The soil round the town is sandy, but fertile when well watered. It is subject to Tripoli, and the Bey of Benghazi was resident there during his visit.

AVILER (Augustine Charles d'), a French architect, born in 1653. He was taken by the Algerines in his passage to Rome, and carried to Tunis, where he designed a grand mosque, which is much admired. He was liberated after two years, and settled at Montpelier, where he died, in 1700. He wrote a Course of Architecture, in 4 vols. 4to.

AVIO, a town of Germany in the bishopric of Trent, a little west of the Adige.

AVIS, a river of Portugal, in Alentejo.

Avis, or Aviz, a small town of Portugal, in Alentejo, seated on an eminence with a castle near the river.

Avis, Knights of, an order of knighthood in Portugal, established about A. D. 1162. When Evora was taken from the Moors, in the reign of Alphonso I. king of Portugal, it was garrisoned by several persons who assumed the title of knights of St. Mary of Evora, which was soon after changed for that of knights of Avis, which town the king gave them, and whither they removed from Avora. The badge of the order is a green cross flory, and they observe the rule of St. Benedict.

Avis Longa, a name given by Nieremberg to the hoitlattotl of the Americans, a bird remarkable for the swiftness of its running.

Avis Nivea, a name under which Nieremberg has described an American bird, of the size of a thrush, brown and black on the back, and yellow under the belly; it imitates the human voice, and is called by the natives, cooan.

Avis Pennifera, the name of an American bird, described by Nieremberg, and called by the Indians quetzaltototl. It is of the size of a pigeon, and is of more beautiful colors than the peacock. There are, besides this species, three or four others. Mr. Ray has, however, ranged all these under the number of birds, the account of which he is either dubious about, or suspicious of the truth of.

Avis Tropicorum, the Tropic bird, a bird of the size of the common duck, found only about the tropics.

Avis Venti, the bird of the wind. See Heatototl.

AVISANDUM, in Scots law, literally advising, or under consideration. A process is said to be under avisandum, when the whole proofs, with the arguments on both sides, are under the consideration of the judge, before he has given an interlocutor or decision upon the cause.

AVIS'ION. Used for Vision.

> The kinge of this *auision*,
> Hath great imaginacion,
> What thinge it signifie maie.
>
> *Gower, Con. A.* book viii. p. 264.

AVISO, adviso, Italian; a term chiefly used in matters of commerce to denote an advertisement, an advice, or piece of intelligence.

AVISON (Charles), an English musician of Newcastle, where he practised the whole of his life. In 1752 he published an Essay on Musical Expression, which was favorably received, and reached a second edition in 1763, when it produced published remarks from Dr. Hayes, professor of music at Oxford. Avison quickly retorted, and his reply is appended to the third edition of the original essay. He died at Newcastle in 1770, and left five concertos for the violin, and other compositions, which are esteemed light and elegant.

AVITES, a tribe of Samaritans, who came from Avah, in Chaldea, and were settled by Sennacherib in Samaria. They worshipped the idols Nibhaz and Tartak. 2 Kings xvii. 24—31.

AVITUS, one of the emperors of Rome, in the last stage of its declension. He succeeded Maximus, A. D. 455, and reigned only one year, being cut off and succeeded by Majorians, A. D. 456.

AVI'ZE. See Advise.

> No power he had to stir, nor will to rise;
> That when the careful knight 'gan well *avize*,
> He lightly left the foe. *Faerie Queene.*
>
> As they 'gan his library to view,
> And antique registers for to *avize*. *Spenser.*
>
> With that, the husbandman 'gan him *avize*,
> That it for him was fittest exercise. *Id.*
>
> But him *avizing*, he that dreadful deed
> Forbore, and rather chose, with scornful shame,
> Him to avenge. *Id.*

AUK, in ornithology, See Alca.

AUKLAND, Bishops. See Auckland.

AULA, is used for a court baron, by Spelman; by some old ecclesiastical writers, for the nave of a church, and sometimes for a courtyard.

Aula Regia, or Aula regis, a court established by William the Conqueror in his own hall, composed of the king's great officers of state, who resided in his palace, and were usually attendant

on his person. This court was regulated by the article which forms the eleventh chapter of Magna Charta, and established in Westminster-hall, where it hath ever since continued. See King's Bench.

AULD WIFE'S LIFT, an ancient structure, in the parish of Baldernock, Dumbartonshire, about a mile from the church; supposed to be a relict of ancient druidism, and from its name to have been the work of Druidesses. The uppermost stone is eighteen feet long, eleven broad, and six deep.

AULEN, an ancient imperial city of Germany, in the circle of Suabia, thirty miles north of Ulm.

AULETES, αυλητες, in antiquity, a flute-player. One of the Ptolemies of Egypt, bore the surname of Auletes.

AULIC, an act, in the Sorbonne and foreign universities, which a young divine maintains upon being admitted a doctor in divinity. It begins by an harangue of the chancellor, addressed to the young doctor; after which he receives the cap, and presides at the aulic or disputations.

Aulic, an epithet given to certain officers of the empire, who compose a court which decides, without appeal, in all processes entered in it. The Aulic council is a jurisdiction of the German empire, established by Maximilian I. in 1502, to counterbalance the authority of the Imperial Chamber. It is called Aulic, because it follows the emperor's court aula. The emperor names all the members, consisting of a president, vice-president, and an unlimited number of counsellors; six of whom at least must be Protestants. All points relating to feudal rights and the reserved territories of the emperor in Italy are arranged by this council. In order to prevent any collision with the emperor's will, it sometimes contents itself with making a report to him in the form 'fiat votum ad Cæsarem.' Following the emperor's court, it is sometimes called justitiam imperatoris, the emperor's justice. The aulic court ceases at the death of the emperor.

AULIS, in ancient geography, a sea-port town of Bœotia, over against Chalcis of Eubœa, on the Euripus, where that strait is narrowest; and which were some time joined by a mole or causeway; on a craggy situation, and a village of the Tanagraci, distant from Chalcis three miles. The harbour is famous for the rendezvous of 1000 ships under Agamemnon, previous to the Trojan expedition. It is now entirely destroyed.

AULIUS Atticus, a captain of a Roman cohort under Julius Agricola, who was killed in a battle with Galgacus, at the foot of the Grampians. Two urns were dug up in the parish of Redgorton, containing human ashes; one of which Mr. Moncrieff supposes to have contained those of this officer, and the other those of Agricola's son.

AULON, anciently a town and station for ships, in Illyricum, on the Adriatic; now called Volano, a port town on one of the mouths of the Po, on the gulf of Venice.

Aulon, or Aulona, anciently a town of Elis, in Peloponnesus, on the confines of Messenia. Here stood a temple of Æsculapius.

AULONIAS, an epithet of Æsculapius. See last article.

AULOS, a Grecian long measure, the same with stadium.

AULTGRANDE, a river of Scotland, in the parish of Kiltearn, in Rosshire, which takes its rise from Loch Glass, and after running six miles falls into the sea. Its course for two of these miles is through a deep chasm of an extensive and rugged precipice, called Craig-grande, or the ugly rock; of which the Rev. Mr. Robertson, in his statistical account of the parish, gives the following description. 'This is a deep chasm or abyss, formed by two opposite precipices that rise perpendicularly to a great height, through which the Aultgrande runs for the space of two miles. It begins at the distance of four miles from the sea, by a bold projection into the channel of the river, which it diminishes in breadth by at least one half. The river continues to run with rapidity for about three quarters of a mile, when it is confined by a sudden jutting out of the rock. Here, the side view from the summit is very striking. The course of the stream being thus impeded, it whirls and foams, and beats with violence against the opposing rock, till, collecting strength, it shoots up perpendicularly with great fury, and forcing its way, darts with the swiftness of an arrow through the winding passage on the other side. After passing this obstruction, it becomes in many places invisible, owing partly to the increasing depth and narrowness of the chasm, and partly to the view being intercepted by the numerous branches of trees which grow on each side of the precipice. About a quarter of a mile further down, the country people have thrown a slight bridge, composed of trunks of trees covered with turf, over the rock, where the chasm is about sixteen feet wide. Here the observer, if he has intrepidity enough to venture himself on such a tottering support, and can look down the gulph below without any uneasy sensations, will be gratified with a view equally awful and astonishing. The wildness of the steep and rugged rocks; the gloomy horror of the cliffs and caverns, inaccessible by mortal tread, and where the genial rays of the sun never yet penetrated; the waterfalls which are heard pouring down in different parts of the precipice, with sounds various in proportion to their distance; the hoarse and hollow murmuring of the river, which runs at the depth of nearly 130 feet below the surface of the earth; fine groves of pines, which majestically climb the sides of a beautiful eminence, that rises immediately from the brink of the chasm; all these objects cannot be contemplated without exciting emotions of wonder and admiration in the mind of every beholder. The appearance of this singular and picturesque scene, will naturally bring to the recollection of the classical spectator those beautiful lines of Virgil, in which he describes the gulph, through which his Alecto shoots herself into the infernal regions:

——densis hunc frondibus atrum
Urget utrinque latus nemoris, medioque fragosus
Dat sonitum saxis et torto vortice torrens
Hic specus horrendum, et sævi spiracula Ditis
Monstrantur; ruptoque ingens Acheronte vorago
Pestiferas aperit fauces. —

Critics may labor to convey the force and meaning of the author's words; and travellers may, by their ingenious descriptions, give us a still more lively idea of their beauty and propriety; but he who would see a living commentary on this noble passage, must visit the rock of Aultgrande.'

AULUS GELLIUS. See GELLIUS.

AUMALE. See ALBEMARLE.

AUME, a Dutch measure for Rhenish wine, containing forty English gallons.

AUMERY. See AMBRY.

AUMONE, in old law style, alms.—*Bailey.*

AUMONE, tenure in, lands given to a church or manastery.

AUMONIER. See ALMONER.

AUNA, the ancient name of Emly, in Ireland.

AUNCEL weight, an ancient kind of balance, prohibited by several statutes, on account of the many deceits practised by it. It consisted of scales hanging on hooks, fastened at each end of a beam, which a man lifted up on his hand. In many parts of England, auncel weight signifies meat sold by the hand, without scales.

AUNCESTER, ancestor.—*Chaucer.*

AUNE, a river of Devonshire, which runs into the sea, east of Plymouth.

AUNE, a long measure used in France to measure cloths, stuffs, ribbons, &c. At Rouen, it is equal to one English ell; at Calais, to 1·52; at Lyons, to 1·061; and at Paris, to 0·95.

AUNEAU, or AUNEAUX, a town of France, in the department of the Eure and Loire, arrondissement of Chartres, with 250 houses. It has a castle, and some hosiery manufactures. Here the duke of Guise defeated, in 1587, the Germans who had come to the assistance of the Protestants. Five leagues east of Chartres.

AUNEDONACUM, the ancient name of Fontenay, in France.

AUNGERVILLE (Richard,) commonly known by the name of Richard de Bury, was born in 1281 at St. Edmund's Bury in Suffolk, and educated at the university of Oxford: after which he entered into the order of Benedictine monks, and became tutor to Edward Prince of Wales, afterwards king Edward III. Upon the accession of his royal pupil to the throne, he was first appointed cofferer, then treasurer of the wardrobe; archdeacon of Northampton, prebendary of Lincoln, Sarum, and Litchfield, keeper of the privy seal, dean of Wells, and last of all bishop of Durham. He likewise enjoyed the offices of lord high chancellor and treasurer of England: and discharged two important embassies at the court of France. Learned himself, and a patron of letters, he maintained a correspondence with some of the greatest geniuses of the age, particularly with the celebrated Italian poet Petrarch. He was also of a most humane and benevolent temper, and performed many signal acts of charity. Every week he made eight quarters of wheat into bread, and gave it to the poor. Whenever he travelled between Durham and Newcastle, he distributed £8 sterling in alms; between Durham and Stockton £5, between Durham and Aukland five marks, and between Durham and Middleham £5. He founded a public library at Oxford, for the use of the students, which he furnished with the best collection of books then in England; and appointed five keepers, to whom he granted yearly salaries. At the dissolution of religious houses in the reign of Henry VIII. Durham college, where he fixed the library, being also dissolved, some of the books were removed to the public library, some to Baliol college, and some into the hands of Dr. George Owen, who bought the college of king Edward VI. Bishop Aungerville died at his manor of Aukland, April 24, 1345, and was buried in the south part of the cross isle of the cathedral church of Durham, to which he had been a benefactor. He wrote, 1. Philobiblos, containing directions for the management of his library at Oxford, and a great deal in praise of learning in Latin. 2. Epistolæ Familiarum; some of which are written to the famous Petrarch. 3. Orationes ad Principes; mentioned by Bale and Pitts.

AUNIS, or Aunix, the smallest of the ci-devant provinces in France. It was bounded on the north by Poictou, on the west by the ocean, and on the east and south by Saintogne. It is now comprehended in the department of Lower Charente. It is watered by the Seure and the Charente. The coast has the advantage of several ports, the most remarkable of which are Rochefort, Rochelle, Brouge, St. Martin de Re, Tremblade, Tonnai, and Charente. The soil is dry, yet produces good corn and plenty of wine. The marshes feed a great number of cattle, and the salt marshes yield the best salt in Europe.

AUNT. Some ingenuity is necessary to derive this word from the Fr. *tante*—' Lat. *amita* from *avita*, and this from *avia!* In Todd's Johnson it is deduced from the Old Fr. *ante*, from a Celtic root, a father or mother's sister.

> Who meets us here? my niece Plantagenet,
> Led in the hand of her kind *aunt* of Glo'ster.
> *Shakspeare.*

> She went to plain work, and to purling brooks,
> Old fashion'd halls, dull *aunts*, and croaking rooks.
> *Pope.*

AVOCATORIA, a mandate of the emperor of Germany, addressed to some prince in order to stop proceedings in any cause appealed to him.

AVOCH, or AUACH, Gael. a ford, a parish in Scotland, Rosshire, on the coast of the Moray Frith, and extending about four miles from south to north, and two and a half from east to west.

AVOID', AVOID'ABLE, AVOID'ANCE, AVOID'ER, AVOIDLESS. Fr. *vuider*, or *eviter*. Lat. *evito*. The word *viduus*, in whole or in part, is supposed to be the etymon. To make void or free from, to leave empty, to go out of, to move away from, to leave, to escape. The word *shun* is usually applied to persons, and *avoid* to things. 'Avoid the room,' no longer means, as in Lord Bacon's time, go out of the room, but 'go not into the room.'

> What have you to do here, fellow? pray you *avoid* the house. *Shakspeare.*

> If any rebel should be required of the prince confederate, the prince confederate should command him to *avoid* the country. *Bacon.*

That *avoidless* ruin in which the whole empire would be involved. *Dennis's Letters.*

Want of exactness in such nice experiments is scarce *avoidable*. *Boyle.*

To take several things for granted, is hardly *avoidable* to any one, whose task it is to shew the falsehood or improbability of any truth. *Locke.*

Now what things can there be of greater moment or importance for men to know or God to reveal, than the nature of God and ourselves, the state and condition of our souls, the only way to *avoid* eternal misery, and enjoy everlasting bliss. *Stillingfleet.*

It is appointed to give us vigour in the pursuit of what is good, or in the *avoidance* of what is hurtful. *Watts.*

AVOIRDUPOIS, avoir du pois, French. A kind of weight, of which a pound contains sixteen ounces, and is in proportion to a pound Troy, as seventeen to fourteen. All the larger and coarser commodities are weighed by avoirdupois weight. Avoirdupois ounce is less than the Troy ounce in the proportion of 700 to 768: but the avoirdupois pound is greater than the Troy pound in the proportion of 700 to 576.

AVOIRDUPOIS WEIGHT. For the table of its divisions, see ARITHMETIC.

AVO'KE, AVO'CATE, AVOCA'TION. Lat. *avoca, avocatum*, I call; from *a*, and *voco*. Evoke is now used instead of the verb. Avocations are those engagements which call off our time and attention from other things.

We have written to your grace in our common letter, for a confirmation of many inconveniences and dangers which we persuaded to his Holiness, to follow both to himself and to the see apostolick, in case his Holiness should *avoke* the cause. *Burnet's Reform Records*, vol. i.

For what is a scholar, but one who retireth his person, and *avocateth* his mind, from other occupations and worldly entertainments. *Barrow's Sermons.*

Sorrow ought not to be suffered to increase by indulgence, but must give way after a stated time to social duties and the common *avocations* of life. *Johnson.*

Whom could I select with such perfect propriety as yourself, who, like the younger Scipio, can so usefully mingle the *avocations* of business with elegant literature? *Dr. Stuart's Dedication of Sallust.*

AVOLATION. Lat. *avolatio* (*a volo*), a flying away from.

These airy vegetables are made by the relicks of dantal emissives, whose *avolation* was prevented by he condensed enclosure. *Glanville's Scepsis.*

Strangers, or the fungous parcels about candles, nly signify a pluvious air, hindering the *avolation* of he favillous particles. *Brown's Vulgar Errours.*

AVON, the name of four rivers in England; iz. 1. rising in Leicestershire, runs south-west y Warwick and Evesham, and falls into the evern at Tewksbury; 2. in Monmouthshire; 3. sing in Wiltshire, coasts the edge of the New orest, and enters the English channel at Christ hurch Bay in Hampshire; and 4. the Lower von, which rises near Tetbury in Glocestersh. id running west to Bath, becomes navigable; ontinues its course to Bristol, and falls into the evern north-west of that city.

AVONA PORTICOSA, the ancient name of the le of Sanda.

AVOSETTA, in ornithology. See RECURVIROSTRA.

AVOU'CH, *v.* & *n.* AVOU'CHER, AVOUCH'MENT. Fr. *avouer*, to affirm. To maintain, declare absolutely, to vindicate, to justify, to corroborate, to answer for the truth of, to support a statment with documents.

They boldly *avouched* that themselves only had the truth, which they would at all times defend. *Hooker.*

Wretched though I seem,
I can produce a champion that will prove
What is *avouched* here. *Shakspeare. King Lear.*

Such authours and *avouchers* of thinges. *Udall. Luke*, cap. i.

But I maruail much that maister Moore beyng a great learned man, would not for the *avouchement* of his credite, and the truth of so great a matter, allege so much as the testimonie and auctoritie of some one aucthor, for the prouyng of his assertion. *Grafton*, vol. i.

AVOW, *v.* & *n.* AVOW'ABLE, AVOW'AL, AVOW'ED, AVOW'EDLY, AVOW'ER, AVOW'RY. Fr. *avouer*. Lat. *Voveo*, I vow or promise. To make a solemn declaration, to acknowledge, to confess.

His cruel stepdame, seeing what was done,
Her wicked days with wretched knife did end;
In death *avowing* th' innocence of her son. *Faerie Queene.*

Wilmot could not *avowedly* have excepted against the other. *Clarendon.*

He that delivers them mentions his doing it upon his own particular knowledge, or the relation of some credible person, *avowing* it upon his own experience. *Boyle.*

Left to myself, I must *avow*, I strove
From publick shame to screen my secret love. *Dryden.*

Virgil makes Æneas a bold *avower* of his own virtues. *Id.*

Such assertions proceed from principles which cannot be *avowed* by those who are for preserving church and state. *Swift.*

This management, when no *avowable* reason could be given for it, gave suspicious and refining persons occasion to throw out a great deal of slander. *Bolingbroke.*

Then blaz'd his smother'd flame, *avow'd* and bold. *Thomson.*

AU-PIS-ALLER, a French phrase, sometimes used among English writers, signifying at the worst.

AURA, among physiologists, an airy exhalation or vapor. The word is Latin, derived from the Greek, *αυρα*, gentle wind.

AURA, in chemistry, a name given to that certain fine and pure spirit, found in every animal or vegetable body; but so subtle, as only to be perceptible by its smell and taste, or other effects, not found in any other body. This aura, says Boerhaave, exhibits the proper character of the body, and is lodged in the oil of the body, to prevent its being dissipated and thrown off.

AURA, in ornithology, a species of vulture.

AURACH, a town of Germany, with a good castle, in the south part of Suabia, in the duchy of Wirtemberg. It is the usual residence of the youngest sons of the house of Wirtemberg; is

seated at the foot of a mountain on the rivulet Ermst, fifteen miles east of Tubingen.

AURE, in mythology, a name given by the Romans to the nymphs of the air. They are mostly to be found in the ancient paintings of ceilings; where they are represented as light and airy, generally with long robes and flying veils of some lively color or other, and fluttering about in the rare and pleasing element assigned to them. They were characterised as sportive and happy in themselves, and wellwishers to mankind.

AVRANCHES, a town of Lower Normandy, formerly the capital of the district called Avranchin, and now of an arrondissement in the department of La Manche. It stands on a hill near the Seez, and commands an extensive prospect of the surrounding country. It was formerly the see of a bishop, whose palace still remains, and who was suffragan to the archbishop of Rouen. The cathedral was founded in 1120. It is only half a league distant from the sea, and the tide brings up small vessels close to the town. The inhabitants carry on a traffic in grain, flax, hemp, cattle, butter, wheat, salt, and cyder, which is here made of an excellent quality. Provisions and fuel are both cheap. Population about 6000. Avranches was much resorted to by the English after the peace of 1814. It lies 222 miles due west of Paris. Long. 1° 17′ W., lat. 48° 41′ N.

AURANTIA, in botany, a natural order, comprehending the entire orange tribe. Jussieu is the author of this order, the seventieth in his arrangement; nor are there any traces of it among the fragmenta of Linnæus. CAL. one leaf, often deeply divided. PET. definite, broad at the base, inserted round a disk on which the germen is placed. STAM. placed on the same disk. GERM. one; style one; stigma simple, or rarely divided. Fruit mostly pulpy, sometimes capsular, of one or many cells, with one or two seeds in each. This order is divided into three sections, according to the seed contained in the fruit. 1. Fruit with only one seed. The leaves are not marked with resinous dots, and hence the plants of this section are termed spurious aurantia. 2. Fruit many-seeded, pulpy. These are genuine aurantia, having the leaves full of pellucid resinous dots. 3. Fruit many-seeded, capsular. Leaves not dotted. Genera akin to aurantia and to meliæ.

AURANTIAM, in botany. See CITRUS.

AURANTIUS PISCIS, in ichthyology, a name given by Nieremberg to the dorado, or dolphin, a species of the coryphæna, distinguished from the others by its forked tail.

AURARIA FUNCTIO, pensio, or præstatio, a tax to be paid in gold.

AURATA, in ichthyology, the fish called gilt head.

AURAY, a town in the province of Bretagne, in France, a department of Morbihans, arrondissement of L'Orient, and the head of a canton. It stands on the gulf of Morbihan, and has a harbour, with considerable trade in corn, honey, skins, and salted fish. The only manufactures are a few woollen stuffs. It trades principally with Spain, and receives in exchange for the above-mentioned articles, Biscay-iron and wine. Population 3200. Four leagues W. of Vannes. Long. 2° 53′ W., lat. 47° 40′ N.

AUREA ALEXANDRINA, in pharmacy, a kind of opiate, or antidote against the cholic and apoplexy, composed of a great number of ingredients, which was in great fame among the ancient writers. It is called aurea, from the gold (aurum) which is an ingredient in its composition; and Alexandria, as having been invented by a physician named Alexander.

AUREA CHERSONESUS, a name given by ancient authors to Japan.

AUREAPOLIS, an ancient town of Bavaria, now called Ingolstadt.

AU'REAT, } Lat. *aurum*, gold; partaking
AURIFE'ROUS. } of the nature and qualities of gold. Poetical epithets.

> And sum departe in freklis rede quhyte,
> Sum bricht as gold with *aureate* leuis lyte.
> *Douglas. Eneados*, Prol. to book xii. p. 401.
>
> Rocks rich in gems, and mountains big with mines,
> Whence many a bursting stream *auriferous* plays.
> *Thomson.*

AURELIA, in natural history, the same with what is usually called chrysalis, and sometimes nymph. See CHRYSALIS.

AURELIA, the ancient name of Orleans.

AURELIANUS, Cœlius, or, as some have called him, Lucius Cœlius Arianus, an ancient physician, and the only one of the sect of the Methodists of whom we have any remains, was of Sicca, a town of Numidia in Africa. This we learn from the elder Pliny, and his style much resembles that of the African writers. It is half Greek, half Latin, harsh, and difficult; yet strong, masculine, full of good sense, and valuable for the matter it contains. It is frequently very acute and smart, especially where he exposes the errors of other physicians, and always nervous. What age Cœlius Aurelianus flourished in, cannot be determined; but it is probable that he lived before Galen, as he does not make the least mention of him. He was not only a careful imitator of Soranus, but also a strenuous advocate for him. He had read over very diligently the ancient physicians of all the sects; and to him we are indebted for the knowledge of many dogmas which are not to be found but in his books, 'De Celeribus et Tardis Passionibus.' The best edition of these books is that published at Amsterdam, 1722, in quarto. He wrote, as he himself tells us, several other works; but they are all perished.

AURELIANUS (Lucius Domitius), emperor of Rome, was one of the greatest generals of antiquity, and commanded the armies of the emperor Claudius II. with such glory, that, after the death of that emperor, the legions agreed to place him on the throne, A. D. 270. He was a native of Dacia, born of obscure parentage, and was elected emperor in the fifty-fifth year of his age. He was a man of amazing strength and courage, and had risen through all the gradations of military duty. In one engagement he is said to have killed forty of the enemy with his own hand; and, in the various battles in which he was engaged, above 900 in all. He carried the war from the east to the west with as much fac-

lity, says a modern writer, as a body of troops marches from Alsace into Flanders. He defeated the Goths, Sarmatians, Marcomanni, the Persians, Egyptians, and Vandals; conquered Zenobia, queen of the Palmyrenians, and Tetricus, general of the Gauls, both of whom graced his triumph in 274. In a word, for valor and expedition, he might be compared to Julius Cæsar, had he possessed equal clemency and moderation. He showed great clemency indeed to queen Zenobia, although he destroyed her city, for he gave her lands and an income sufficient to maintain her in all the splendor of her former royalty without the trouble of it. But his generosity to that princess was sullied by his ordering her secretary, Longinus, the celebrated critic, to be put to death, whose work on the sublime ought to have procured him respect from any person one degree removed from barbarism. His severities were at last the cause of his destruction. Mnestheus, his secretary, conspired against him, and he was slain by one of his generals in passing with a small guard from Heraclea in Thrace towards Byzantium, A. D. 275, after a very active reign of five years. See Rome.

AURELLI, or Arelli, a Latin poet of the sixteenth century, who obtained the government of a district from Leo X. but whose tyrannical behaviour made the inhabitants throw him into a well, in 1520. His poems are much in the manner of Catullus.

AURENGABAD, or Aurungabad. See Aurungabad.

AURENG-ZEBE, the Great Mogul, was the third son of Schah Iehan. He was born in 1618, and in his youth feigned an air of religious sanctity, but in 1658 he and his brother Morad seized Agra, and took their father prisoner. Not long after, he put Morad and Dara, another brother, to death. He, however, showed some tenderness towards his father, who died in 1666. Aureng-zebe increased his dominions so much, and became so powerful, that ambassadors were sent to him from all the eastern princes; and for the sake of commercial advantages, many European princes did the same. He died at Ahmednaghur in 1707, aged eighty-nine. His possessions were, by his will, divided among his sons. He was of a low stature, with a large nose, a white beard, and olive complexion. He was slender, and supported himself on a staff; yet he endorsed petitions without spectacles, and seemed pleased with doing business at a public audience. He subdued Visapour, Golconda, and the Carnatic; overran the kingdom of Asen; reduced Bengal; and cleared the mouth of the Ganges from the Portuguese pirates. He had formed a design to destroy all the native princes, and to force a conversion of the Hindoos; but harrassed in his turn by the rebellion of his sons, he was obliged to put off the execution of this momentous endeavour. By his indulgence towards his omrahs and governors his meaner subjects were oppressed with impunity. 'God,' he observed, in his usual sanctimonious manner, 'would punish them if they did evil.' The real state of the case was, that he shared in the fruits of their oppression.

AUREOLA, in ecclesiastical antiquity, originally signified a jewel, proposed as a reward of victory in some public dispute. Hence the Roman schoolmen applied it to denote the reward bestowed on martyrs, virgins, and doctors, on account of their works of supererogation; and painters use it to signify the crown of glory with which they adorn the heads of saints, confessors, &c.

AUREOLUS, a Dacian shepherd, who aspired to the empire, but was defeated and slain by Claudius, a general of the emperor Gallienus. This usurper is known by some medals bearing on one side his head, crowned with rays, as in the annexed figure, inscription IMP. M. ACIL. AUREOLUS P. F. AUG. on the reverse a goddess, resting on a pillar, with a sceptre in her right hand, a cornucopia in her left, and a globe at her feet, inscription PROVIDENTIA AUG.

AUREUS, a Roman gold coin, equal in value to twenty-five denarii, or 100 sesterces. According to Ainsworth, the aureus of the higher empire weighed nearly five pennyweights; and in the lower empire little more than half that weight. Suetonius says, that it was customary to give aurei to the victors in the chariot races.

Aureus Mons, in ancient geography, 1. A mountain in the north-west of Corsica, whose ridge runs out to the north-east and south-east, forming an elbow. 2. Another of Mœsia Superior, or Servia, south of the Danube, which the emperor Probus planted with vines; and 3. A town at the foot of it, on the same river.

AURIA (Vincent), a Sicilian writer, born at Palermo, 1625. He was author of several works in Latin and Italian; but the principal are a History of the most eminent Men of Sicily, 1704; and a History of the Viceroys of Sicily, 1697, folio. He died in 1710.

AURICHALCUM, *ορειχαλκον*, mountain-brass; from *ορος*, a mountain, and *χαλκος*, brass; the metal now called brass being a mixture of copper and lapis calaminaris. It is called aurichalcum by Plautus, and orichalcum by Virgil and Horace. Plaut. Mil. act iii. scene 1. v. 64.

Cedo mihi tres homines aurichalco contra cum istis moribus.

AURICULA, in botany. See Primula.

Auricula, in ichthyology, the earwig.

Auricula Judæ, or Jew's Ear, a kind of fungus, or mushroom, somewhat resembling in figure a human ear. It grows on elder-trees, the tree on which, as some pretend, Judas hanged himself; and hence, they think, the name is derived. This fungus steeped in water and applied to the eyes, is said to free them of inflammation; but its chief use is in the form of a gargle in decoctions against inflammations of the throat, or swellings of the tonsils.

AURIC'ULAR, } Lat. *auricula*, flap of the
AURIC'ULARLY. } ear; sometimes the ear itself. Addressed to the ear—as much as to say, to go no further. Private, secret, confidential.

You shall hear us confer, and by an *auricular* assurance have your satisfaction.
Shakspeare. King Lear.

The alchymists call in many varieties out of astrology, *auricular* traditions, and feigned testimonies.
Bacon.

These will soon confess, and that not *auricularly*, but in a loud and audible voice. *Decay of Piety.*

AURICULATED LEAF, in botany, is a leaf which has a lobe on each side towards the base.

AURIFLAMMA, in the French history, a standard belonging to the abbey of St. Dennis, suspended over the tomb of that saint, which the religious, on occasion of any war in defence of their land or rights, took down, with great ceremony, and gave to their protector or advocate, to be borne at the head of their forces. Hence the word is sometimes used to denote the chief flag or standard of an army.

AURIGA, the waggoner, in astronomy, a constellation of the northern hemisphere, consisting of twenty-three stars, according to Tycho; forty, according to Hevelius; and sixty-eight, in the Britannic catalogue. It is figured as an old man with a goat, her kids in his left hand, and a bridle in his right. Capella, the goat, is a star of the first magnitude. Its rising was deemed by the ancients a prognostic of rain.

AURIGNAC, a town of Gascony, the head of a canton, in the department of the Upper Garonne, arrondissement of St. Gaudens. The inhabitants, who amount to about 1230, trade in cattle, and manufacture woollen goods. It is seated on the river Louge, fourteen leagues S. E. of Toulouse.

AURIGNY, a small island in the English channel, belonging now to England, twenty miles north from Jersey, and seven west of Cape La Hogue. Long. 2° 9′ E., lat. 49° 43′ N.

AURIGRAPHUS; from aurum, gold, and γραφω, I write; in the middle age, writers, a copyist, or calligrapher, who wrote in gold letters.

AURILLAC, a town of France, on the Jordane, in Upper Auvergne. At present it is the chief town in the department of the Cantal. Here are manufactures of woollen stuffs, carpets, stamine, shalloon, and lace; in which, as well as in cattle and cheese, an active trade is carried on. Population 10,332 in 1815. Fifteen leagues south-east of Tulle, and 111 south of Paris. Long. 2° 31′ E., lat. 44° 55′ N.

AURIOL, a town of France, in the department of the Bouches du Rhone, arrondissement of Marseilles. Here are some woollen manufactures. Population 3700, five leagues north-east of Marseilles.

AURIPIGMENTUM. See ORPIMENT.

AURIS, the ear. See ANATOMY, Index.

AURIS ASINI, ass-ears, a name given by naturalists to a species of sea-shell, supposed to resemble the ear of an ass.

AURIS EXTERNA, the auricle.

AURIS MARINA, ear-shell.

AURIS PORCI, hog's ear, in natural history, a sea-shell, a species of the murex.

AURISCALPUM, an instrument to clean the ears, and serving also for other operations in disorders of that part.

AURISPA (John), a Sicilian writer. He was appointed secretary to Nicholas V. from whom he obtained two abbeys. He died at Ferrara, at the end of the fifteenth century. He translated the works of Archimedes, and Hierocle's Commentary on the golden verses of Pythagoras.

AUROGALLUS (Matthew), professor of languages at Wittemberg, was a native of Bohemia; he assisted Luther in his translation of the Bible into German, and wrote a Hebrew and Chaldee Grammar, printed at Basle in 1539. He died in 1543.

AURIUM ABSCISSIO, cutting off the ears, was a punishment inflicted, by the Saxon laws, on those who robbed churches; afterwards on every thief; and, at length, on divers other criminals.

AURON, a river of France, in the department of Cher, anciently called Avara.

AURORA, in the mythology, the goddess of the morning, was the daughter of Hyperion and Theia, according to Hesiod; but of Titan and Terra, according to others. It was under this name that the ancients deified the light which foreruns the rising of the sun above our hemisphere. The poets represent her as rising out of the ocean in a chariot, with rosy fingers dropping gentle dew. Virgil describes her ascending in a flame colored chariot with four horses. She had various lovers, Cephalus, Pandion, Tithonus, &c. Aurora is also used for the morning twilight, or that faint light which appears in the morning when the sun is within 18° of the horizon.

AURORA, one of the New Hebrides islands in the South Sea, in which Mr. Forster supposes the Peak d'Etoil, mentioned by Mr. Bouganville to be situated. The island is inhabited; but none of its inhabitants came off to visit Captain Cook. The country is woody, and the vegetation seemed to be excessively luxuriant. It is about twelve leagues long, but not above five miles broad in any part; lying nearly north and south. The middle lies in long. 168° 24′ E., lat. 15° 6′ S.

AURORA AUSTRALIS, SOUTHERN LIGHT, or STREAMERS, similar to the aurora borealis, or northern light, only more clear and white. See AURORA BOREALIS.

AURORA BOREALIS, NORTHERN TWILIGHT, or Streamers; a kind of meteor appearing in the northern parts of the heavens, mostly in the winter-time, and in frosty weather. It is now so generally known, that no description is requisite of the appearance which it usually makes in this country. But it is in the arctic regions that it appears most remarkable, particularly during the solstice. In the Shetland islands, the merry dancers, as they are there called, are the constant attendants of clear evenings. They commonly appear at twilight near the horizon, of a hue approaching to yellow; sometimes continuing for several hours without any sensible motion; after which they break out into streams of stronger light, spreading into columns, and altering slowly into ten thousand different shapes, varying their colors from all the tints of yellow to the obscurest russet. They often cover the whole hemisphere,

and then make the most brilliant appearance. Their motions at these times are most amazingly quick; and they astonish the spectator with the rapid change of their form. They break out in places where none were seen before; darting along the heavens, are suddenly extinguished, and leave behind an uniform dusky tract. This again is brilliantly illuminated in the same manner, and as suddenly left a dull blank. Sometimes they assume the appearance of vast columns, on one side of the deepest yellow, on the other declining away till it becomes undistinguishable from the sky. They have generally a tremulous motion from end to end, which continues till the whole vanishes. In a word, we, who only see the extremities of these northern phenomena, have but a faint idea of their splendor and their motions. According to the state of the atmosphere, they differ in colors. They often put on the color of blood, and make a dreadful appearance. The rustic sages become prophetic, and terrify the gazing spectators with the dread of war, pestilence, and famine. This superstition was not peculiar to the northern islands; nor are these appearances of a recent date. The ancients called them Chasmata, and Trabes, and Bolides, according to their forms or colors. The Aurora Borealis in this country, appears usually of a reddish color, inclining to yellow, and sends out frequent coruscations of pale light, which seem to rise from the horizon in a pyramidal undulating form, and shooting with great velocity up to the zenith. They appear often in the form of an arch, which is partly bright, and partly dark, but generally transparent: and the matter of them is not found to have any effect on the rays of light, which pass freely through them. Dr. Hamilton observes, that he could plainly discern the smallest speck in the Pleiades through the density of those clouds which formed part of the aurora borealis in 1763, without the least diminution of its splendor, or increase of twinkling. Sometimes it produces an iris; and hence, M. Godin judges, that most of the extraordinary meteors and phenomena in the skies, related as prodigies by historians, as battles, and the like, may probably enough be reduced to the class of aurora borealis. This kind of meteor never appears near the equator; but it seems, is frequent enough towards the south pole, like as towards the north, having been observed there by voyagers. See Philosophical Transactions, No. 461, and vol. liv.; also Forster's account of his voyage round the world with Captain Cook, where he describes their appearance, as observed for several nights together, in sharp frosty weather, which was much the same as those observed in the north, excepting that they were of a lighter color. Meteors of this kind have appeared more frequently at some periods than others; whence it would seem, that the air, or earth, or both, is not at all times disposed to produce this phenomenon. The extent of these appearances is also amazingly great. That which occurred in March, 1716, was visible from the west of Ireland to the confines of Russia, and the east of Poland; extending at least near thirty degrees of longitude, and from about the fiftieth degree in latitude, over almost all the north of Europe; and in all places, at the same time, it exhibited the like wondrous appearances. Father Boscovich has determined the height of an aurora borealis, which was observed by the marquis of Polini the 16th of December, 1737, and found it was 825 miles high; and Mr. Bergman, from a mean of thirty computations, makes the average height of the aurora borealis amount to seventy Swedish, or 469 English miles. But Euler supposes the height to be several thousands of miles; and Mairan also assigns to them a very elevated region. Many attempts have been made to determine the cause of this phenomenon. Dr. Halley imagines that the vapors, or effluvia, exceedingly rarefied by subterraneous fire, and tinged with sulphureous steams, which many naturalists have supposed to be the cause of earthquakes, may also be the cause of this appearance; or that it is produced by a kind of subtile matter, freely pervading the pores of the earth, and which, entering into it nearer the southern pole, passes out again with some force into the æther, at the same distance from the northern. This subtile matter, by becoming more dense, or having its velocity increased, may perhaps be capable of producing a small degree of light, after the manner of effluvia from electric bodies, which, by a strong and quick friction, emit light in the dark; to which sort of light this seems to have an affinity. On this subject see Philosophical Transactions No. 347; and also Mr. Cotes's description of this phenomenon, and his method of explaining it, by streams emitted from the heterogeneous and fermenting vapors of the atmosphere, in Smith's Optics, p. 69. The celebrated M. de Mairan, in an express treatise on the aurora borealis, published in 1731, supposes its cause to be the zodiacal light, which according to him, is no other than the sun's atmosphere; this light happening, on some occasions, to meet the upper part of our atmosphere about the limits where universal gravity begins to act more forcibly towards the sun, falls into our air to a greater or less depth, as its specific gravity is greater or less compared with the air through which it passes. However, M. Euler thinks the cause of the aurora borealis not owing to the zodiacal light, as M. de Mairan supposes: but to particles of our atmosphere, driven beyond its limits by the impulse of the solar light. And on this supposition he endeavours to account for the phenomena observed concerning this light. He supposes the zodiacal light, and the tails of comets, to be owing to a similar cause. But ever since the identity of lightning and the electric matter has been determined, philosophers have been naturally led to seek for the explication of aerial meteors in the principles of electricity; and there is now no doubt but most of them, and especially the aurora borealis, are electrical phenomena. Besides the more obvious and known appearances which constitute a resemblance between this meteor and the electric matter by which lightning is produced, it has been observed that the aurora occasions a very sensible fluctuation in the magnetic needle; and that when it has extended lower than usual in the atmosphere, the flashes

have been attended with various sounds of rumbling and hissing, especially in Russia and the other more northern parts of Europe; as noticed by Sig. Beccaria and M. Messier. Mr. Canton, soon after he had obtained electricity from the clouds, offered a conjecture, that the aurora is occasioned by the dashing of electric fire positive towards negative clouds at a great distance, through the upper part of the atmosphere, where the resistance is least; and he supposes that the aurora which happens at the time when the magnetic needle is disturbed by the heat of the earth, is the electricity of the heated air above it: and this appears chiefly in the northern regions, as the alteration in the heat of the air of those parts is the greatest. Nor is this hypothesis improbable, when it is considered, that electricity is the cause of thunder and lightning; that it has been extracted from the air at the time of the aurora borealis; that the inhabitants of the northern countries observe it remarkably strong, when a sudden thaw succeeds very cold severe weather; and that the tourmalin is known to emit and absorb the electric fluid only by the increase or diminution of its heat. Positive and negative electricity in the air, with a proper quantity of moisture to serve as a conductor, will account for this and other meteors, sometimes seen in a serene sky. Mr. Canton has since contrived to exhibit this meteor by means of the Torricellian vacuum, in a glass tube about three feet long, and sealed hermetically. When one end of the tube is held in the hand, and the other applied to the conductor, the whole tube will be illuminated from end to end, and will continue luminous without interruption for a considerable time after it has been removed from the conductor. If, after this, it be drawn through the hand either way, the light will be remarkably intense through the whole length of the tube. And though a great part of the electricity be discharged by this operation, it will still flash at intervals, when held only at one extremity, and kept quite still; but if, at the same time, it be grasped by the other hand in a different place, strong flashes of light will dart from one end to the other; and these will continue twenty-four hours or more, without a fresh excitation. Sig. Baccaria conjectures that there is a constant and regular circulation of the electric fluid from north to south; and he thinks that the aurora borealis may be this electric matter performing its circulation in such a state of the atmosphere as renders it visible, or approaching nearer than usual to the earth; though probably this is not the mode of its operation, as the meteor is observed in the southern hemisphere, with the same appearances as in the northern. Dr. Franklin supposes, that the electric fire discharged into the polar regions, from many leagues of vaporised air raised from the ocean between the tropics, accounts for the aurora borealis; and that it appears first where it is first in motion; namely, in the most northern parts; and the appearances proceed southward, though the fire really moves northward. Mr. Kirwan, in the Transactions of the Royal Irish Academy, anno 1788, has also some ingenious remarks on the aurora borealis and australis. He gives his reasons for supposing the rarefaction of the atmosphere in the polar regions to proceed from them, and these from a combustion of inflammable air caused by electricity. He observes, that after an aurora borealis the barometer commonly falls, and high winds from the south generally follow. The only distinct history of this phenomenon is what we have from Dr. Halley, Philosophical Transactions, No. 347. Mr. Forster, who, in his voyage round the world with Captain Cook, assures us, that he observed them in the high southern latitudes, though with phenomena somewhat different from those which are seen here. On February 17th, 1773, as they were in the fifty-eighth degree of south latitude, 'A beautiful phenomenon,' says he, 'was observed during the preceding night, which appeared again this and several following nights. It consisted of long columns of a clear white light, shooting up from the horizon to the eastward, almost to the zenith, and gradually spreading on the whole southern part of the sky. These columns were sometimes bent sideways at their upper extremities; and though in most respects similar to the northern lights (auroræ boreales) of our hemisphere, yet differed from them in being always of a whitish color, whereas ours assume various tints, especially those of a fiery and purple hue. The sky was generally clear when they appeared, and the air sharp and cold, the thermometer standing at the freezing point.' These are what Mr. Kirwan denominates aurora australis.

M. Libes, in his Nouv. Dict. de Physique, has suggested a new theory, which is adopted by most of the northern philosophers. In his opinion electrical light is not the cause of the auroræ boreales; nor has electricity itself any farther influence upon their existence than as it fixes the aeriform substances whose combinations occasion the meteor. This philosopher's theory is founded upon the following principles:—1. If we excite the electric spark in a mixture of azotic and oxygen gas, there will result nitric acid, nitrous acid, or nitrous gas, according to the relation that subsists between the gases which compose the mixture. 2. Nitric acid, when exposed to the sun, assumes more color and volatility. Scheele first observed this phenomenon. Libes placed a receiver over a salver containing nitric acid, and exposed to the action of the solar rays. Some minutes after, the acid appeared colored, and the receiver filled with red and volatile vapors, which were sustained in it a long while, and diffused a light similar to that of the aurora borealis. 3. In flasks, which contain nitrous acid, a ruddy and volatile vapor is always perceived above the vapor. 4. Nitrous gas, in contact with atmospheric air, exhales ruddy vapors, which fly off into the atmosphere. 5. The hydrogen, which is disengaged from the surface of the globe, rises till it occupies, in the higher regions of the atmosphere, a place determined by its specific gravity. 6. The solar heat has very little activity in the polar regions.

These principles rest upon observations and experiments made with the greatest exactness, and most of them too well known to need being described here. Now it is manifest from a simple combination of these facts:—1. That the

production of hydrogen must be almost nothing in the polar regions. 2. That the higher regions of the polar atmosphere contain very little if any hydrogen. 3. That whenever there is a re-establishment of equilibrium of the electric fluid in the polar atmosphere, this fluid can only find in its passage a mixture of azot and oxygen. 4. That the electric spark ought to fix and combine these gaseous substances. 5. That from this combination must result a production of nitrous acid, of nitric acid, or of nitrous gas, according to the relation subsisting between the oxygen and azot that constitute the mixture. 6. That the productions of either of these acids, or of the gas, will give birth to red and volatile vapors, whose elevation in the atmosphere will form the meteor known under the name of the aurora borealis.

After removing some general objections to these preliminary notions, M. Libes applies them to the phenomena below:

1st *Phenomenon.*—The auroræ boreales are sometimes accompanied by slight detonations.

In the polar regions, the production of hydrogen is next to nothing, by reason of the little activity of the solar heat. It is nevertheless true, that in summer the long duration of the sun above the horizon causes even there a heat sufficiently considerable to produce the disengagement of some small portion of hydrogen, which will rise up to the higher regions of the atmosphere: whence it results, that if the re-establishment of equilibrium of the electric fluid takes place in the polar atmosphere, when its superior strata contain this gaseous substance, the electric spark must exert upon it a part of its activity, and produce slight detonations.

2d *Phenomenon.*—The major part of auroræ boreales appear to move from the north towards the south; though some are seen whose motion is directed towards the east and west.

The nitric acid, nitrous acid, and nitrous gas, which give birth to auroræ boreales, have their origin towards the poles. These substances exhale ruddy vapors, which, as they rise in the atmosphere, must direct their motion towards the place where they meet with least resistance; which is, of course, towards the south, where the air, always less dense than about the north, offers them a more free and easy passage. It may also happen that at the same time these ruddy vapors are formed, a northerly wind may blow in the upper region of the atmosphere, and thus give them a strong impulsion, which, combined with the preceding general tendency southward, may cause a resulting motion to be sometimes southward, at others eastward, or westward.

3d *Phenomenon.*—The auroræ boreales sometimes exhibit themselves under the form of luminous columns having different figures and different directions. Some are cylindrical, others pyramidal, others are curved in the shape of an arc. When they are impelled with much activity, they proceed to the zenith of the spectator. Those whose motion is still more rapid, go on beyond the zenith, sometimes even till they reach the southern horizon. They do not always rise directly from the centre of the cloudy part towards the zenith; but sometimes take a lateral direction, especially when the cloud from whence they spring is found suspended between the north and the east or west.

When the re-establishment of equilibrium of the electric fluid fixes and combines a great quantity of azote and oxygen, the ruddy vapors resulting from this combination must occupy a large space in the atmosphere. These vapors being of such considerable extent, and impelled from north to south, must sometimes separate from one another, the different portions receiving various directions; thus they will be carried sometimes perpendicularly, at others parallel to the horizon; at others parallel to the earth's axis; whence it follows that the aurora borealis must sometimes appear to the observer in the form of columns, whose number, figure, and direction, are determined by circumstances. It may also sometimes happen that these luminous columns remain for a time immovable with respect to the horizon. This ought to be the case whenever a wind impels the luminous cloud towards any part whatever from the south, with the same force as the exhalations are impelled towards it by a contrary wind.

4th *Phenomenon*—The auroræ boreales do not all shine with an equally vivid lustre; some have a mild and tranquil light, others shine with a very resplendent brilliancy.

The vapors which are disengaged from nitric acid exposed to the solar rays, diffuse a mild light of a clear red, verging towards yellow; those which are perceived above them from nitrous acid, are of a deep red; those exhaled from the nitrous gas, in contact with the atmospheric air, are at first of a pretty deep red, which afterwards become more and more clear and light, as these vapors extend themselves more in the atmosphere. The luminous columns, therefore, presented by the aurora borealis, have different colors, according as the ruddy vapors take their rise from the formation of the nitric acid, of the nitrous acid, or of the nitrous gas. Retrospect of Philosophic, &c. Discoveries, No. 8. Our countryman, Mr. Dalton, is of opinion that the aurora borealis is a magnetic phenomenon, the beams being governed by the earth's magnetism. See his Meteorological Essays, and Gregory's Astronomical and Philosophical Lessons.

Aurora Surgens, in alchemy, a phrase used to express the multiplicative virtue of the philosophers' stone.

AURUM, Latin, gold. See Gold, Chemistry, and Metallurgy. This metal was introduced into medicine by the Arabians, who esteemed it one of the greatest cordials and comforters of the nerves. From them Europe received it without any diminution of its character; in foreign pharmacopœias it is still retained, and even mixed with the ingredients from which simple waters are to be distilled. But no one, it is presumed, at this time expects any singular virtues from it, since it certainly is not alterable in the human body. Former chemists endeavoured, by many elaborate processes, to extract what they call a sulphur anima, or spirit of gold; but no method is as yet known of separating the com-

ponent parts of this metal: all the tinctures of it, and aurum potabile, which have hitherto appeared, are real solutions of it in aqua regia, diluted with spirit of wine or other liquors, and prove injurious to the body rather than beneficial. A place, however, is now given in some of the foreign pharmacopœias to the aurum fulminans; and it has been recommended as a remedy in convulsive diseases, particularly in the chorea sancti viti.

Aurum Fulminans is a dangerous preparation, and should be used with great caution. A scruple of this powder acts more forcibly than half a pound of gunpowder: a single grain laid on the point of a knife, and lighted at a candle, goes off with a greater noise than a musket. Dr. Black attributes the increase of weight, and the explosive property of this powder, to adhering fixable air. See Chemistry, Index.

Aurum Mosaicum, Aurum Musivum, a preparation so called from its golden color, made of mercury, tin, sal ammoniac, and flowers of sulphur. It is recommended in most chronical and nervous cases; and particularly convulsions of children. Its dose is from four grains to a scruple. It is also used as a pigment, and for mixing with glass, to imitate the spangles of the lapis lazuli. Mosaic gold is composed of 100 tin + 56·25 sulphur, by Dr. John Davy; and of 100 tin + 52·3 sulphur, by Professor Berzelius; the mean of which, or 100 + 54·2 is probably correct. It will then consist of 1 prime of tin = 7·375 + 2 sulphur = 4·0.

Aurum Potabile, or tincture of gold; a medicine formerly in great request, but at present rarely used. It is prepared by mixing essential oil of rosemary with a solution of gold in aqua regia; and after shaking the vessel, the gold is retained in the oil, swimming on the top. The very name imposes on many people, and gives an opportunity to empirics to cheat them; for they draw tinctures from ingredients whose colors come near to that of gold, and sell them at an exorbitant rate under this title. This sort of deceit generally succeeds best; for patients are prepossessed in favor of such medicines as cost much, carry great names, and have a specious appearance. It often happens that these tinctures produce some good effects, because they can make them with such spirituous menstrua, as comfort the heart, and expel ill humors by perspiration; then the effect is extolled for a miracle, and attributed to the imaginary gold.

Aurum Reginæ. See Queen-Gold.

Aurum Sophisticum, mimic gold, a chemical preparation made as follows: take fine distilled verdigris, eight ounces; crude Alexandrian tutty, four ounces; borax, twelve ounces; salt-petre, one ounce and a half; pulverise and mix them all together, tempering them with oil to the consistence of a plaster; then put a German crucible into a wind furnace, heat it red hot, and putting your mass into it, let it be covered, and the furnace filled with coals over the crucible. When the mass is melted, let it cool of itself, then break the crucible, and you will find at the bottom a fine regulus, like gold, weighing about four ounces, which being malleable may be wrought into any form.

Aurum Vegetabile, Saffron.

AURUNCI, in ancient geography, a people of Latium, towards Campania; the same with the Ausones, at least so intermixed as not to be distinguishable, though Pliny makes a distinction

AURUNGABAD, (so called from the Mogul Emperor Aureng-zebe), a province of the Deccan, Hindostan, principally divided between the Mahrattas and the Nizan; the former possessing about three-fourths of its area, and strictly including the islands of Salsette and Bombay, belonging to the British. It is bounded on the north by Gujerat, Candesh, and Berar; on the east by Berar and Hyderabad; south by Bejapoor and Boeder; and west by the ocean; its length being about 300 miles, and its average breadth 160 miles. Although this province is hilly throughout, it gives rise to no rivers of consequence. The Beemah and Godavery, which have their sources in the same neighbourhood (about thirty miles east of Poonah), are the principal streams. On the banks of the former are reared the strongest Mahratta horses, called the Beemarheddy breed, and the whole province is fertile, particularly in rice. Its natural fastnesses have been in numerous places fortified by art; and under the warlike dominion of the Mahrattas have been rendered at once the security and curse of the country. These fortresses are principally occupied by independent chieftains, who pay a sort of feudal homage to the Paishwa, but are in reality the lords of the soil. The population is about six millions, consisting mainly of Brahminical Hindoos. Ahmednuggar, Aurungabad, Basseen, Damaura, Dowletabad, and Jalnapoor, are the chief towns. In the article Ahmednuggar it will be seen that an independent sovereignty of that name, which included the greater part of this province, was established here at the close of the sixteenth century. A few years afterwards (1601 to 1630), we find the province called by the name of another principal town, Dowletabad, the seat of the Nizam Shahee dynasty, which being taken in 1634 by the Moguls, the government was transferred to Gurka, the former name of the city of Aurungabad. The East India Company's forces at Bombay command the whole of the coast, which swarms with native pirates. See Ahmednuggar.

Aurungabad, the capital of the above district, was, under its original name of Gurka, the chief town of the viceroyalty of the Deccan, and the residence of the emperor Aureng-zebe, while viceroy: a circumstance to which it owes, with the province, its present name. It continued to be the capital of a Mogul soubah until the Nizams withdrew their allegiance from the court of Delhi; it was then for some years the capital of the Nizam's dominions. At present, the capital having been transferred to Hyderhabad, Aurungabad is on the decline; but there is a noble bazaar here for shawls and silks, and a fine ruin, once the palace of Aureng-zebe. The Fakeer's tomb is also admired. It is distant from Poonah 186 miles, and 284 from Bombay. Lat. 19° 4′ N., long. 76° 3′ E.

AUSA, a town of Tarraconensis, in the middle age called Ausona, now Vich de Ossona, a town of Catalonia in Spain.

AUSCH. See Auch.

AUSCI, a people of Gaul, the ancient inhabitants of Auch. See Augusta.

AUSCULTATOR, in ancient customs, a person appointed in monasteries to hear the monks read and sing, and to instruct them how to perform, before they were admitted to read or chant publicly in the church.

AUSHOFEN, a town in the circle of Suabia, belonging to the house of Austria. Long. 27° 16′ E., lat. 48° 15′ N.

AUSI, or Ausenses, an ancient and very savage people of Libya. Herodotus tells us that they were unacquainted with marriage, and had all their women in common. The children were brought up by their mothers till they were able to walk; after which they were introduced to an assembly of the men, who met every three months; and the man to whom any child first spoke, acknowledged himself its father. They celebrated annually a feast in honor of Minerva, in which the girls divided into two companies, and fought with sticks and stones; those who died of their wounds were concluded not to have been virgins.

AUSIMUM, or Auximum, an ancient Roman colony in the Picenum; now Osimo or Osmo, in Ancona.

AUSITÆ, Aisitæ, or Æsitæ, a tribe of ancient Arabs, supposed by Bochart to have inhabited the land of Uz mentioned in Job. See Arabia.

AUSKERRY, 1. a district in the island of Stronsay, consisting of four holms; 2. a small pasture isle belonging to the parish, and three miles from the island of Stronsay; and on which there are the ruins of an old chapel, and of a house called the Monker, or Monk's house.

AUSONA, in ancient geography, a town of the Ausones.

AUSON, a son of Ulysses and Calypso, from whom the Ausones are descended.

AUSONES, or Ausonii, a people who anciently occupied all the Lower Italy, from the promontorium Circæum, down to the straits of Sicily, but were afterwards reduced to a much narrower compass; viz. between the Montes Circæi and Massici: nor did they occupy the whole of this, but other people were intermixed.

AUSONIA, the ancient name of Italy, from its earliest inhabitants the Ausones.

AUSONIUM Mare, in ancient geography, a part of the Ionian sea, extending southwards from the promontory Japygium, to Sicily, which it washes on the east, as it does the Brutii and Magna Græcia on the south and east. It is separated from the Tuscan sea by the straits of Messina.

AUSONIUS (Decius, or Decimus Magnus), one of the best poets of the fourth century, was the son of an eminent physician, and born at Bourdeaux. Great care was taken of his education, either because his genius was very promising, or that the scheme of his nativity, which had been cast by his grandfather, made them imagine that he would rise to great honor. He made an uncommon progress in classical learning; at the age of thirty he was chosen to teach grammar at Bourdeaux; and afterwards promoted to be professor of rhetoric; in which office he acquired so great a reputation that he was sent for to be preceptor to Gratian, the emperor Valentinian's son. He was afterwards appointed consul, by his pupil Gratian, then emperor, A.D. 379; and besides the dignity of questor, to which he had been nominated by Valentinian, he was made prefect of the Prætorium in Italy and Gaul, after that prince's death. His speech, returning thanks to Gratian on his promotion to the consulship, is highly commended. He lived to a great age. The emperor Theodosius had a great esteem for him, and pressed him to publish his poems. There is a great inequality in his works, and in his style there is a harshness which was perhaps rather the defect of the times he lived in, than of his genius. According to Lempriere, he did not take proper time to correct his poems, but hurried them to publication, which may be the cause of many faults. One valuable performance, the Consular Fasti, is now lost. He is generally supposed to have been a Christian. The best edition of his poems is that of Amsterdam, in 1671. They were printed at Paris, with a French translation, in 1769.

Auspex, a name originally given to those who were afterwards denominated augurs. It is formed from avis, a bird, and inspicere, to inspect; auspices, q. d. avispices. Some will have auspices only to denote those who foretold future events from the flight of birds.

AUS'PICATE, *v.* & *adj.*
Aus'pice,
Aus'picy,
Aus'picious,
Aus'piciously.

Lat. *auspex*, from *avis*, a bird, the obsolete *spicere*, to look; to take favorable omens from birds; but in a less formal and official manner than by augury. To foretel good fortune, prosperity, &c. Auspicious is synonymous with favorable, prosperous.

Know thus far forth;
By accident most strange, bountiful fortune
(Now my dear lady) hath mine enemies
Brought to this shore, and by my prescience
I find my zenith doth depend upon
A most *auspicious* star; whose influence
If now I court not, but omit, my fortunes
Will ever after droop. *Shakspeare. Tempest.*

None of their kindred met; the knot they ty
Silent; content with Brutus *auspicy*.
May's Lucan, book ii.

Thus were their loves *auspiciously* begun,
And thus with secret care were carried on.
Dryden's Fables.

Skilled in the wing'd inhabitants of air,
What *auspices* their notes and flight declare
O! say—for all religious rites portend
A happy voyage and a prosp'rous end. *Dryden.*

But so may he live long, that town to sway,
Which by his *auspice* they will nobler make,
As he will hatch their ashes by his stay. *Id.*

Auspicium, Auspicy, the same with Augury. Servius, indeed, distinguishes between auspicy and augury; making auspicy comprehend the consideration of all things; augury only of certain things.

AUSPITZ, a town of Moravia, in the circle of Brunn, belonging to the prince of Lichtenstein. Here are held large cattle markets which

are attended by a number of graziers from Hungary. Population 2215. Forty-two miles S.S.W. of Olmutz.

AUSTER, one of the four cardinal winds, as Servius calls them, blowing from the south.

AUSTE'RE, AUSTE'RELY, AUSTERE'NESS, AUSTER'ITY. } Lat. *austerus*; from *avω*, I dry; because harsh tastes dry the palate. Harsh, disagreeable to the moral taste, rigorous, severe.

My unsoil'd name, th' *austereness* of my life,
May vouch against you; and my place i' th' state
Will so your accusation overweigh. *Shakspeare.*

Now, Marcus Cato, our new consul's spy,
What is your sour *austerity* sent t' explore?
Ben Jonson.

What was that snaky-headed Gorgon shield
That wise Minerva wore, unconquer'd virgin,
Wherewith she freez'd her foes to congeal'd stone,
But rigid looks of chaste *austerity*,
And noble grace, that dash'd brute violence
With sudden adoration and blank awe? *Milton.*

Th' *austere* and pond'rous juices they sublime
Make them ascend the porous soil, and climb
The orange tree, the citron, and the lime.
Blackmore.

Compos'd in gait,
Austerely grave and thoughtful, on his shield
The democratic majesty he bore
Of Athens. *Glover's Leonidas*, book vii.

AUSTERE implies also rough or astringent. Thus an austere taste is such a one as constringes the mouth or tongue; as that of unripe fruits, harsh wines, vitriol, alum, &c. Austere substances, says Mr. Chalmers, differ from acerb ones, in that they constringe the mouth and tongue less, and are void of acidity.

AUSTERLITZ, or SLAWKOW, a small town of Moravia, in the circle of Brunn, twelve miles east of Brunn, belonging to the prince of Kaunitz Rielberg. Population about 1620. This town will be long memorable in history for the great battle fought near it on the 2d of December, 1805, the anniversary of Buonaparte's coronation, between the French under him, and the united forces of Austria and Russia, under their respective emperors. The armies it appears were nearly equal, being about 70,000 men each. Buonaparte, by feigning a retreat, drew the allies to a spot which he had selected for giving battle; and he bivouacked on the field, after having spent most of the night in giving orders. The battle commenced with the dawning light. After a cannonade of several hours the allied right and centre were routed; and their left, which had been more successful in the outset, was compelled to give way. The defeat was signal; but the approach of night prevented pursuit; the state of the roads compelled the allies to abandon most of their artillery, and forty standards; all the baggage and ammunition of the allies, and 120 pieces of cannon, remained in the hands of the French. The French are supposed to have lost 13,000 men in killed and wounded; and the Austro-Russians three times the number. It is certain that so many wounded were left on the field by the allies, that they could not all be dressed until two days after the battle. Near this place an interview immediately took place between the emperor of Austria and Buonaparte, in a mill, and the preliminaries of an humiliating peace were agreed to. But the emperor Alexander refused to become a party to it, and succeeded, though under every difficulty, in effecting his retreat homeward.

AUSTIN (William), an English author, was a barrister of Lincoln's Inn. He wrote a book entitled Hæc Homo, or the Excellency of Women, 12mo.; in which he seems to have borrowed very freely from Agrippa's De Nobilitate at Præcellentia Fœminei Sexus. He wrote also Meditations on the principal Fasts and Feasts of the Church, which were published in folio, 1637, after his death.

AUSTIN (St.) See AUGUSTINE, St.

AUSTRALASIA, or AUSTRALIA, is a new and fifth great division of the globe, originally suggested by a learned foreigner, M. le President de Brosses of Paris; but whose principal parts have been explored by Englishmen, and which has been colonised solely from this country. It comprehends a tract of ocean, bounded on the north by the equator, east by a line drawn on the 186th degree of east longitude, to the 55th degree of south latitude, south by the 55th parallel, and west by a line drawn from the north-west Cape of Hapau, on the east of the islands of Mysol, Timorlaut and Ceram, to the 65th degree of east longitude on the 55th parallel; making an irregular four-sided figure, extending upwards of 5000 miles in average breadth from east to west, and about 3200 miles from north to south.

Australasia is, therefore, a maritime division of the globe, in distinction from the older terrene divisions of Europe, Asia, Africa, and America; it is, altogether, a classification of islands, having no one continent of this name, including, as the other divisions of the world, various kingdoms circumscribed by one shore; so far it is an anomaly in geographical classification. 'But in this immense extent of regions, which are to form the object of researches about to be detailed,' says M. de Brosses (Histoire des Navigations aux Terres Australes), 'how numerous are the different countries, climates, manners, and races of mankind! The sight would be dazzled and confounded if care were not taken to relieve it, and fix its attention, by divisions marked from distance to distance.' On these grounds he proposed, together with a classification of the islands of the Pacific, under the name of Polynesia, to include New Holland, New Guinea, New Zealand, and the islands in their neighbourhood, under the collective name of Australasia, an arrangement that has been latterly adopted by most respectable writers. Some have preferred the term Australia, as more consonant to the primitive appellation, Terra Australis, or Southern Land.

The progress of the discovery of this immense region may be correctly united, with the common features of its various parts, under this collective article. The history of particular settlements will be found under BOTANY BAY, NEW HOLLAND, NORFOLK ISLAND, VAN DIEMEN'S LAND, &c. in their alphabetical positions in our work. We present the reader with a Chronological Table of the discovery of the islands of Australasia

A Chronological Table of the discovery of the Islands of Australasia.

NAME.	WHEN DISCOVERED.	BY WHOM.	INHABITANTS.
1. Papua or New Guinea.	1526.	The Portuguese, under D. Jorge de Meneses.	Black Negroes; much resembling those of Guinea.
2. New Holland,	Supposed to be uncertain—Marked in a Map in the British Museum in 1542; first authentic account of its being visited, dated 1606.	The Dutch, in the Duyxen yacht. About the same time the Spaniards visited it under Torres, and F. de Quiros.	Ditto; a remarkably barbarous race;—'all of them of the most unpleasant look, and the worst features of any people I ever saw, though I have seen a great variety of savages,' says Dampier.
3. Solomon's Islands. Of which the principal are— Buonavista, Florida, Galera, Guadalcanar, Santa Ysabel, San Christoval, San Catarina, Santa Ana,	1567.	The Spaniards, under Alonso de Mandana. Not again visited until by Carteret, in 1767.	Inhabitants, cannibals. — Many of the islands very fertile. Extend from S. lat. 5° to 11°, E. long. 155° to 162° 30′.
4. New Hebrides, According to Cook, Tierra des Espiritu Santo, St. Bartholemew, Mallicola, Isle of Lepers, Aurora, Whitsuntide, Amtrym, Apee, Paoom, Three Hills, Sandwich, Montagu, Hichinbrook, Shepherd's Isles, Erromango, Tanna, Inmer, Annatom, Erronan,	1606.	The Spaniards, under F. de Quiros, and L. V. de Torres.—Explored by Captain Cook in 1774, who gave them their present name.	Inhabitants, more civilised, at Tanna the negro character disappears. The country very fruitful and agreeable; and, in some of them laid out in well fenced plantations. The Terra del Espiritu Santo, the principal of the group, lies in S. lat, 14° 30′, E. long. 167° 30′.
5. New Britain, New Ireland, &c.; a group not fully ascertained. To the N. W. are the Admiralty Isles.	1616.	The Spaniards, under Le Maire and Schouten.	Inhabitants of New Britain and Ireland black negroes. Inhabitants of the Admiralty Isles of a lighter color, and approaching the Malay character. All the islands fertile and well watered: lying in a crescent, whose centre lies in S. lat. 50°, E. long. 150°.
6. Van Diemen's Land.	1642—as an island in 1798.	The Dutch, under Abel Jansen Tasman.—The British, Capt. Flinders and Mr. Bass.	A similar race. Called after the Dutch governor of the East Indies, Anthony Van Diemen.
7. New Zealand, having to the east Chatham Island.	1642. Chatham island in 1791.	The Dutch, under Abel J. Tasman.—By Mr. Broughton when with Vancouver.	Inhabitants remarkably strong, active, and barbarous. Have at the same time singular traces of civilisation amongst them.

A Chronological Table of the Discovery of the Islands of Australasia—continued.

NAME.	WHEN DISCOVERED.	BY WHOM.	INHABITANTS.
8. St. Paul and Amsterdam	1696.	The Dutch, under Vlaming.	Uninhabited. Amsterdam a volcanic production, if not the crater of an immense volcano, scarcely cool, and abounding with hot water springs. Seals are caught on the shore in large quantities
9. Kerguelen's Land, or Island of Desolation	1772.	The French under M. de Kerguelen.	Uninhabited and barren.
10. New Caledonia.	1774.	The British, under Capt. Cook.	Inhabitants, affable, honest, and of light complexion. The country comparatively barren, occasionally laid out in plantations.

We have thus exhibited the leading features of this extensive division of the globe, in the order in which they became known to Europe; but must not omit to notice the coral reefs and islets with which the Australasian seas abound. These are seen in every league of sea, and according to Dalrymple, in 'all stages' of their formation. Capt. Flinders, who was wrecked on one of them, conjectures, 'that when the animalculæ, which form the coral at the bottom of the ocean, cease to live, their structures adhere to each other, by virtue either of the glutinous remains within, or of some property in salt water; and the interstices being gradually filled up with sand and broken pieces of coral washed by the sea, which also adhere, a mass of rock is at length formed. Future races of these animalculæ erect their habitations upon the rising bank, and die in their turn, to increase, but principally to elevate, this monument of their wonderful labors.' It is pretty well authenticated that these submarine laborers uniformly build the outer part of their erection perpendicularly from the very bottom of the deepest seas. As it rises to the surface, and out of the water, salt plants, vegetable matter of various descriptions, floating wreck and other accumulations attach themselves to it; 'we had wheatsheafs, mushrooms, stag's horns, cabbage-leaves, and a variety of other forms, glowing under water,' says Capt. Flinders, 'with vivid tints of every shade betwixt green, purple, brown, and white.' The dung of birds and the various seeds and other food they occasionally scatter, are fruitful sources of the growth of these extraordinary productions of the deep; some are seen considerably below the water, others just appearing above its surface; some as barren rocks with no indications of soil; others with a thin layer of earth, or a few weeds on the highest part; and others, again, well clothed with soil and even with timber. The recent navigator of these seas, whom we have quoted, describes himself as having to seek fourteen days, and sail upwards of 500 miles amongst that range of these reefs and islets which environs the eastern coast of New Holland, before he could find a passage through them to the open sea.

In no part of the globe can greater extremes of barrenness and fertility occur than in the various islands comprehended in Australasia. On the shores of New Holland, its most prominent feature, we find fruitful plains covered with verdure eastward, and on the south and south-western coast nothing but naked hillocks of sand; 'so uniform,' says M. D'Entiecasseaux, 'that the most fruitful imagination could find nothing to say of it.' This island, indeed, if such it is to be called, almost equal in size to the whole of continental Europe, presents of itself an unequalled and almost unexplored field for geological enquiry; the outline of the western coast is not filled up; and some recent journeys into the interior, from our colony on the eastern shore, have disclosed an extensive series of as promising lands, watered by some noble rivers, within 140 miles of Sidney, as are found in any part of the world. See NEW HOLLAND.

The natives of Australasia are for the major part, of a decisively African or negro character; and nowhere is human nature found in a more degraded state. An enormous head, flat countenance, and long, slender extremities, mark their physical conformation, together with an acuteness of sight and hearing; but, often half-starved, their strength is generally less than that of the inhabitants of other climes. In no part of these seas is the population great. Not more than 20,000 inhabitants have been seen on all the coasts of these islands taken together. Of natural affections, little, of course, appears, and of religion, absolutely nothing. Mothers have scarcely the regard of the brute creation for their offspring. They will commonly procure abortion by violent means; and sometimes adopt the horrible expedient of burying their children alive, to be freed of the trouble of them. An inhabitant of New Holland knocks down the woman of his choice with a club, in the presence of her friends, and takes her into the woods, while in a state of insensibility. Here the alliance is preserved as long as he finds it convenient; he then deserts her for a new wife, who is similarly obtained.

No quadrupeds larger than the kangaroo are found here, and none whatever in many of the

islands. This animal was first described by Captain Cook, who found it while with a shooting party on the coast of New South Wales in 1770. It is peculiar to this part of the world, but has been found to breed well in England. There is also a small animal peculiar to Australasia, called the wombat, of the bear tribe, but remarkably tame. The most extraordinary animal, however, of this, or perhaps of any other region, is the ornithoryneus paradoxus, or duck-bill; a quadruped with the beak of a duck. Dr. Shaw was so astonished at this apparent mixture of bird and quadruped in its formation, that when the first specimen was exhibited to him at the British Museum, he suspected it to be an attempt at imposition. 'Nor is it without a minute examination,' says this distinguished naturalist, 'that we can persuade ourselves of its being the genuine snout of a quadruped. The body is depressed, and has some resemblance to that of an otter in miniature; it is covered with a very thick sort of beaver, like fur, and is of a moderately dark brown color above, and of a subferruginous white beneath, with some variety as to intensity of color in different animals. The head is flattish, and rather small than large; the tail flat, furry, like the body, rather short and obtuse, with an almost bifid termination; it is broad at the base, and gradually lessens to the tip. The general length of the animal, from the tip of the beak to the end of the tail, seems to be from thirteen or fourteen, to eighteen inches. The legs are very short, terminating in a broad web, and claws which on the fore feet are five in number, straight, strong, and pointed; but on the hind feet in the male, are six claws, the sixth or interior one being seated much higher up than the rest, and resembling a long sharp spur.' Dr. Shaw first described this animal in his Naturalist's Miscellany, under the title of Platypus animus.

Numerous tribes of beautiful birds are seen here. The bird of Paradise, so long spoken of in Europe as wanting feet; paraquets, cockatoos, a singular species of cassowary, and a black swan. Immense whales, seals, and dolphins, crowd upon the shores, where a large cuttle fish is sometimes seen, having the appearance of a cask upon the water, and stretching out its tentecula to the length of seven or eight feet. The tribe of molluscas is also singularly rich. One species of marine fucus has been found to reach from the bottom of the sea to the surface, on a stem from 250 to 300 feet in length.

The botany of this region is as curious and novel as any other of its features. Mr. Brown, who accompanied Captain Flinders, and who had the magnificent botanical collections of Sir Joseph Banks under his charge, has arranged a Flora Terræ Australis, containing 4,200 species referable to 120 natural orders, eleven of those orders containing about half the species. In Van Dieman's Land, the gum-tree (of which 100 different species are found) not unfrequently attains the height of 150 feet, with a girth near the base of from twenty-five to forty feet. The gum of this tree is medicinal, and that of one species makes very good pitch. It also furnishes, together with the sasuarina, excellent timber for ship-building, agricultural implements, or domestic furniture.

There can be no question that the supposed existence of an immense continent in the Southern Ocean first invited the navigators of the sixteenth and seventeenth centuries to explore these important islands; nor was the idea of its existence wholly abandoned until the discoveries of Captain Cook. The name of Terra Australis Incognita was given to this feature of science; and upon no point were geographers more agreed than respecting its existence, although its limits were variously defined. Even in the year 1770, 'the great southern continent' was declared by Mr. Dalrymple, in his Historical Collections, to be no longer a matter 'for discovery;' that 'it extended from 30° south, to the pole; and that the number of its inhabitants was probably more than 50,000,000;' while 'the countries intermediate' between the east and west points, 'equal in extent all the civilised part of Asia, from Turkey to China inclusive.' Thus the supposed extension of the East Indies round to the west, allured Columbus to the arduous enterprize that resulted in the discovery of the western world; and thus some harmless errors, pursued with humility, are kindly allowed by providence to lead us to truth.

AUSTRALIS CORONA. See CORONA AUSTRALIS.

AUSTRALIS PISCES, the Southern Fish, is a constellation of the southern hemisphere, not visible in our latitude: whose stars, in Ptolemy's catalogue, are eighteen, and in the Britannic catalogue, twenty-four.

AUSTRALIZE. From *auster*, the south. To point towards the south.

Steel and good iron discover a verticity, or polar faculty; whereby they do septentriate at one extreme, and *australize* at another. *Brown's Vulgar Errours.*

AUSTRASIA, the ancient name of, 1. Lorraine, in France; and, 2. of Westrick, in Germany.

AUSTRIA.

AUSTRIA, in geography, a country of Germany, the Upper Pannonia of the ancients, deriving its modern name from the French and Italian pronunciation of Œsterich; in High German, Œsterreich; a name which signifies the eastern kingdom, alluding to the geographical position of the province with respect to the more western parts of Germany, and which was originally applied to the circle of Austria, the patrimonial possession of the first grand dukes.

The CIRCLE OF AUSTRIA is the largest of the ten circles or divisions of the German empire, bounded on the east by Hungary, south by Italy and Croatia, west by Switzerland, and north by Suabia, Bohemia, and Moravia. It comprehends Austria Proper, Styria, Carinthia, and Carniola dutchies, the country of Tyrol, the principalities of Brixen and Trent, part of Friuli and the Littoral, Voralberg, certain districts in Suabia, and several domains belonging to the

Teutonic order; together with Saltzburg and part of Passau, which have been added since 1802. Of this extensive circle, the four general divisions of Upper Lower, Anterior, and Interior Austria have been formed, corresponding with their administration by the chancery at Vienna; the whole including an area of 29,940 square miles, and a population of nearly 5,000,000.

The Archduchy of Austria, otherwise called Austria Proper, or the Hereditary States of the house of Austria, forms the upper and lower divisions of this circle, into which it is divided by the flowing of the river Ens. It is bounded on the north by Bohemia and Moravia, on the east by Hungary, on the south by Styria, and on the west by Saltzburg and Bavaria, comprehending an area of 12,092 square miles, and a population of nearly two millions of inhabitants. Of the two divisions of this archduchy, Lower Austria is the most important, containing, on a surface of 7788 square miles, thirty-eight cities, 241 towns, 4327 villages; and by the last census, 1,100,000 inhabitants. It is made to consist of four subordinate divisions, lying upon the two opposite banks of the Danube. On the south bank the quarter 'above the forest of Vienna,' and 'the quarter below the forest of Vienna.' On the north bank the quarter 'above the Mannhartsberg,' and 'the quarter below Mannhartsberg.' Upper Austria, containing an area of 5104 square miles, and including fourteen cities, ninety-two towns, 6411 villages; and, according to the late census, 629,945 population; is also divided into four subordinate territories, those of the Traun, Hansruck, and Inn, on the south bank of the Danube, and that of Muhl on the north. The archdukes of Austria were originally exempt from the jurisdiction of the high courts of the empire, took precedency of princes of the blood, and had the power of creating counts, barons, and other nobility. According to the Pragmatic sanction of 1713, the succession to this archduchy is hereditary, females not excluded. The revenue is about 24.000,000 florins, 20,000,000 of which are contributed by the country below the Ens. The states, however, assemble but seldom, and have but a very contracted influence in the management of national concerns.

The Empire of Austria, besides the provinces of the same name, including the archduchy and other territories described above, comprehends many ancient kingdoms and states which were originally independent. It is situated in the middle of eastern Europe, and is bounded by Piedmont, Switzerland, and Bavaria, on the west; Bavaria, Silesia, and Poland on the north; Russia, Moldavia, and Wallachia, on the east; Turkey, the Adriatic, and Middle Italy on the south. The northern part of the empire stretches into Bohemia, and the southern into the territory of Cattaro, in the region of Dalmatia. It has received several augmentations of territory at different periods, and includes a number of nations, all differing in their lineage, customs, languages, and habits, but forming one solid and compact political body, and subsisting at present under one general name.

The following table presents a view of its great component parts, as settled by the last peace, or in 1816 :—

COUNTRIES.	Square Miles.	Inhabitants.	Computed Revenue in Sterling Money.
Circle of Austria	45,760	4,222,700	£4,000,000
Saltzburg, Berchtolsgade, and Passau	4,378	255,000	140,000
Bohemia	20,900	3,112,000	2,000,000
Moravia	10,296	1,364,000	700,000
Austrian Silesia	1,826	286,000	150,000
Galicia, with the Bukowine	53,400	4,934,000	1,600,000
Hungary, including Transylvania, Sclavonia, and Austrian Croatia	130,920	9,400,000	1,800,000
Venetian territories, including Istria	15,136	2,894,000	1,500,000
Dalmatia, with Cattaro, Ragusa, and the islands	8,052		
Lombardy, viz. the territories of Milan and Mantua	4,400	1,350,000	400,000
Lordships of Valteline, Bormio, and Chiavenne.	1,320	108,700	20,000
Total in round numbers	300,000	28,000,000	12,000,000

In 1818, Mr. Lichtenstern states the extent of the empire, exclusively of the dependent states, at 250,000 square English miles; and the population at 28,207,882.

The natural features of Austria are very magnificent; the southern parts highly romantic: the scenes and landscapes of Carinthia, Carniola, and Dalmatia, have long been celebrated as some of the most perfect in the Alpine regions; whilst detached hills and chains of mountains bulge in irregular figures all over the northern districts, uniting themselves with the great Carpathian chain, the natural boundary of Hungary and Transylvania. But the Tyrol stands pre-eminent for its rich variety of picturesque scenery. Bold mountains and defiles, lakes and glaciers, cataracts and cascades, rivers, woods, and valleys, shaded with great beauty, bestowed in the

different grounds of the picture, irregularly grouped and brought, unite in the same sweep of prospect, and overwhelm the mind of the spectator with unutterable emotions.

The highest mountains belong to the central part of the empire; namely, to Styria, Carinthia, and Carniola, where they frequently reach the height of 4000 feet. The snowy mountain, in the hereditary states, is of vast altitude, and may be seen from the ramparts of Vienna every clear day. The elevated ramifications of the Alps and Carpathian mountains, with the circular barrier of Bohemia and other ranges, spread themselves over very extensive regions of the Austrian empire, and under various names and forms stretch from the borders of Switzerland to the confines of Russia.

The interior of Austria is intersected by noble rivers. The Danube is altogether, perhaps, the most rapid and majestic. This river, winding its course from the north-west to the south-east, divides the whole empire into two distinct parts. It receives into its bosom upwards of forty tributary streams before it enters the Austrian dominions, and afterwards an accession of one hundred more before it enters the Euxine Sea. The rivers that empty themselves into this grand emporium of waters are many of them of considerable magnitude, and chiefly take their rise in the mountains already enumerated. The Thesis originates in the eastern part of the Carpathian range, and is at first a fine, clear, and rapid stream. It flows four degrees east longitude, and then turning south, crosses Hungary, receiving the Maros, Koros, and other tributary accessions, and enters the Danube near the city of Belgrade. The river Save is formed by numerous mountain torrents descending from the summits of Tyrol. It flows along the southern border of the Austrian dominions, and enters the Danube a little below the Thesis. The Drave originates in the streams and cataracts of the mountains of Carinthia, and receives the Muhr at Legrad, which conveys the waters from the northern summits of Styria. Crossing these two beautiful provinces, and forming the separating boundary between Croatia and Hungary, it falls into the Danube below Esseck. The Inn, rising in the elevated regions of the Swiss Alps, and descending to the north-east through the kingdom of Bavaria, forms the western boundary of the empire, and enters the Danube at Passau. The Raab and Leytha rise in the western parts of Hungary, and fall into the Save; the former near Komora, and the latter at Presburg. The Morava, or March, from which Moravia derives its name, descends from the northern extremity of that province, and proceeding south, falls into the Danube west of Presburg. The Mulda rises in the southern regions of Bohemia, and taking a northerly direction, flows into the Elbe. The southern parts of Austria are watered by numerous important streams and rivers, which originate in the chain of mountains that encircles the north of Italy, are cherished by the overflowings of those lakes that lie upon its bosom, and are poured over the summits of that lofty range in falling torrents and beautiful cascades. The Adige and the Po will be described in our view of Italy. The Piave rises in the overflowings of the sub-alpine lakes, and descends through the territory of Brixen and the province of Treviso, into the Gulf of Venice. The Tesino rises in St. Gothard mountain, and forms the south-western boundary of the Austrian territory, flowing through the country of Grissons, the lake of Maggiore, and the Milanese territory; it washes the walls of Pavia, and falls into the Po. The Adda rises in Mount Braulis in the country of the Grissons, and after flowing through the valley of Valteline, falls into the lake of Como, and re-issuing from the south-east arm of that basin, enters the Po near Cremona. The Oglio rises in the Val Camonica, and bending to the south, flows through Venice and lake Isero to the duchy of Milan, and then winding south-east, crosses the duchy of Mantua, and falls into the Po a few miles east of the Adda. The greater part of the Austrian rivers are too rapid, and too much impeded by rocks and waterfalls, to admit of any extensive navigation; much, however, has been effected by canals, and plans of the most gigantic kind have been formed for connecting the great rivers with each other, and thus opening a communication between the interior of Austria and all the maritime kingdoms of Europe.

The lakes of Austria are numerous, but are inferior to those of Russia and Switzerland. They chiefly lie upon the tops of mountains, or pent up within the valleys and intersections formed by the bold ridges which characterise the scenery. Those on the south side of the great Alpine range are considered among the grandest specimens of picturesque beauty found in Europe. They form the distinguishing features of the landscape, and furnish that delightful charm which so bewilders and astonishes the traveller. The chief are Maggiore, or Lucarno, Lugano, Como, Lecca, Iseo, and Garda. Maggiore is, from its situation and figure, regarded as the most beautiful. It lies embosomed in hills, adorned with orchards, nurseries, and vineyards, and has its summit shaded with dark thick forests of chestnut-trees. The banks are spotted with covered avenues in trellis-work, and are laid with numerous small sheets of water, while the lake itself presents a clear greenish surface, broken by beautiful islands of different figures and dimensions, embellished with numerous temples and gardens. Lake Como is almost equally delightful. It lies among mountain scenery perfectly romantic, and is celebrated for an intermitting spring near Tarno and the ancient Caves of Verena. The lake Lago di Garda is diversified with small islands, capes, promontories, and peninsulas, and lies sunk in hills richly adorned with vines, lemon, orange, olive, and other fruit-trees. On a peninsula of that lake lies the ancient ruins of Sirmis, so highly celebrated by Catullus. The small, but beautiful Iseo, is less than the other lakes, but lies amid the same alpine summits, and participates of the same delightful scenery.

The climate of Austria is various, and in general salubrious, except in the neighbourhood of the plains and marshes where the miasma often

proves fatal. In the southern regions it is warm, and produces the wines and fruits commonly found in the upper regions of Italy; but in the northern parts, comprising Gallicia, part of Hungary, Bohemia, and Moravia, with the whole of Austrian Silesia, the cold is often severe.

The soil of Austria is also various, including almost every species from the most barren to the most fertile. Sandy plains are frequently found, in which nothing can grow; whilst the banks of the Po and Danube are, in point of luxuriance, scarcely to be equalled. Of the land of Austria not less than 24,000,000 joch, each about an English acre and a half, is occupied by forests. These are in general of the finest timber and of the greatest importance to the empire. That of Belevar in Hungary, situated on the Drave, consists for the most part of different species of oak trees, thousands of which, at a considerable distance above the root, are seven feet in diameter, and continue nearly the same size to the height of thirty, forty, and even fifty feet, without throwing out a single branch. But though Austria is wholly, from its situation, an agricultural empire, that science is imperfectly understood; and the late improvements are scarcely known. Even endeavours for the more extensive promotion of agriculture have been unsuccessful, owing to the want of a better mode of tenure and a better understanding between the cultivators and the proprietors. The productions of some parts of the empire are nevertheless numerous and excellent, embracing all that can administer to the necessaries and even luxuries of life. Austria Proper yields corn, wine, and fruits. Bohemia pulse, grain, hops, &c. Hungary produces millet, maize, and rice. The valleys of Carniola produce oil and excellent wine, with fruits, millet, and flax; while the sub-alpine regions yield all the productions of southern climes, abounding in oranges, lemons, vines, peaches, figs, and tobacco. From a recent calculation by M. Blumenbach, it appears that the present quantity of arable land in Austria is about 43,582,000 acres; of which, allowing one-third for fallow, there remains 29,054,700 productive acres; and of grain alone the annual produce has been calculated at 360,000,000 Winchester bushels, or about 12·4 for every acre. The land in Austria devoted to the cultivation of wine is about 2,324,660 acres, and the produce about 493,109,565 gallons, being about 212 gallons per acre; besides which, the vineyards of Smyrmiam alone yield 70,000 eimers of spirit, distilled from the grapes, after the wine has been drawn from them, each eimer equal to fifteen English gallons; and the same spirit is produced in the other provinces in equal proportion. The whole value of the vegetable production of his imperial majesty's dominions has been estimated at the annual sum of £68,500,000 sterling, and the waste lands have been calculated at 25,271 English square miles.

The domestic animals are chiefly horses, cattle, buffaloes, sheep, swine, &c. Efforts have been made to improve the breed of horses, by the introduction of the Arabian and other species amongst them, which have been commonly successful. The emperor established a breeding-stud at Mezöhegyes in Hungary, about the year 1783. It occupies four commons, containing 63,000 English acres, employs 500 men, and furnishes the army alone with 1000 horses annually. Attention has likewise been paid to the improvement of sheep, and of the wool imported to England, as Saxon, a great part is the produce of the Hungarian flocks. The cattle are mostly of a bluish slate-color; they feed chiefly in the forests, where they are protected from the heat of the sun, and are a considerable source of wealth to the inhabitants. The chief wild animals of Austria are those common on the European continent, consisting chiefly of wolves, boars, lynxes, &c. The chamois and the marmot are common.

Of the feathered tribes may be enumerated bustards and pelicans, and some species of the falcon. A few birds are also found upon the mountains of Carniola, which are peculiar.

The mineral riches of Austria are considerable, and are more varied and important than those of most other states in Europe. Near Kremnitz, in Hungary, are mines of gold and silver. Silver mines are also found in Chemnitz, about twenty miles south of the latter. Schmelnitz and Herrengund contain valuable mines of copper. Antimony, coal, salt, and alum are also found in different parts of the empire. The opal is a mineral peculiar to Hungary, and as a gem is held in high estimation throughout the east. It is found in the mines of Kzerwenza, east of Kremnitz, in all states and qualities, from the semi-opal to the finest and most valuable. Gold ore is obtained of several kinds. The gray gold ore is found in the Nyjag, north-east of Deva, and is peculiarly rich. The white gold ore is found a few leagues north of Karlsburg. To the west of the same town are mines of the same metal, in the vicinity of Zalantha. To the north of the province are those of Kapnich, and in the southern parts fresh gold mines are also said to have been recently discovered. Bohemia contains ancient mines of gold, silver, copper, and lead, in which are found perhaps the finest garnets in the world. Styria produces the finest steel; and mercury is said to be found in many parts of the empire. The Austrian mines altogether employ more than 35,000 persons, and the annual produce has been calculated at 2100 marks of gold, 93,000 of silver, 62,000 centvers of copper, 44,000 of iron, and 23,000 of lead. Excellent marble, and also mineral springs, are common in many parts of Austria.

Vienna, the capital, and centre of its commerce, lies near the site of the ancient Vindobona, towards the eastern confines of Germany, on a plain where the Vien falls into the Danube. The whole city approaches to the figure of a cone, of which the apex is formed by St. Stephen's church, and the circumference by the basis of the external lines of the fortification. The church of St. Stephen is the chief ornament of the city: it has a beautiful spire covered with fretwork, and a roof distinguished by the finest Mosaic tiling. This edifice is closely connected with the history of Austria; and their chief princes, heroes, and sages, sleep within its walls. The church of the

Augustines, and the imperial palaces, attract considerable attention.

Prague is the second city in Austria, and the capital of Bohemia, containing 80,000 inhabitants. It derives its name from a bridge which crosses the Mulda, 1800 feet long and thirty-five broad; on the battlements of which are thirty-two statues of saints, and at each end a high gothic tower of exquisite architecture. Its buildings and gardens are fine and numerous, although the former are many of them in ruins. Its university, which was founded by Charles IV. in 1347, was long considered as the great depository of German literature, and attended by 40,000 students, but now can scarcely boast the attendance of 400 ragged boys. The other chief towns of Austria are Presburgh, the capital of Hungary; Lemberg, the capital of Galicia or Austrian Poland; Gratz, the capital of Styria; Venice, the capital of the Venetian territories; Olmutz, the ancient capital of Moravia; Milan, the capital of the late kingdom of Italy; Mantua, the capital of the Mantuan territories; Trent, Brescia, Pavia, Padua, Verona, Trieste, Lintz, Saltzburgh, Troppau, Clausenburgh, Carlstadt, Hermannstadt, Toeplitz, and Œdenburg, Schemnitz, and Kremnitz, in the mining districts; Brunn, the modern capital of Moravia and Debretzin; Pesh, the Transacincum of the Romans; and Buda, sometimes called Offen-Buda, the last two contiguous to each other, and only separated by the Danube. They are often regarded as one city, and considered by many geographers as the capital of Hungary. There are several other considerable towns, though of inferior importance.

The chief manufactures of Austria are cotton, thread, linen, lace, silks, stuffs, stockings, spirituous liquors, brass, iron, and steel; agricultural and kitchen utensils, glass, porcelain, and earthenware. The manufacture of some of these is confined to particular districts; cotton is manufactured chiefly in Austria Proper, where the British machinery and improvements have been introduced, and no fewer than 360,000 persons are constantly employed. Linen is manufactured chiefly in Bohemia and Moravia, although some of the finest qualities are obtained from Austrian Silesia, where upwards of 80,000 pieces are produced annually. The iron forges of Austria are about 1000, and are chiefly in Bohemia, in the country near the Enns, and in Styria. The last of these contains 200 of them, and produces 14,000 tons of wrought iron and steel annually. The steel ware of Carlsbadt is in high repute in many parts of Europe. Glass and porcelain manufactures are carried to a considerable extent in several parts of the empire; of the former there are no fewer than 170 works; nearly one half of which are in Bohemia, where magnificent services and beautiful highly finished lustres are made. Plate glass is carried to great perfection at Neuhaus. Leather, gunpowder, tobacco, sugar, and cinnamon, receive considerable attention in several districts; and the jewellers of Vienna are much renowned for polishing precious stones.

From a jealousy of foreign manufactures there is no great fair held in the Austrian states, except at Botzen, on the Italian frontier; but several markets have been instituted for the interchange of domestic commodities. The rivers of Austria in some parts, greatly facilitate and improve the inland trade, whilst the great commercial roads afford the means of supplying even the secluded inhabitants of the Alps with all the comforts and conveniences of life. The chief imports of Austria consist of the raw materials, as wool, cotton, raw silk, drugs, oil, rice, and spices, received chiefly from the Levant. They export their own manufactures. Austrian consuls have been placed about the Levant and other parts of the Mediterranean, under the protection of Trieste and Constantinople, for the advantage of commerce; and the Greek merchants, who trade with them, are obliged, as a security to the state, to have a certain proportion of visible property in the empire.

The established religion of Austria is the catholic, but since the time of Joseph II. full toleration has been granted to all religious professions; and in Hungary, Transylvania, and Sclavonia, members of the Protestant and Greek churches are numerous, and are settled in the enjoyment of considerable privileges. The ecclesiastical establishment has nine archbishops, viz. those of Vienna, Gran, Kolocza, Prague, Lemberg, or Leopold, Olmutz, Layback, Udina, and Milan. Under these there are above thirty Catholic bishops, and six of the united Greek church. The archbishop of the pure Greek church has his seat at Carlowitz, in the eastern part of Sclavonia, and has nine suffragans under him. The archbishop of Gran is the metropolitan of Hungary, and by virtue of his office is lord lieutenant, primate, and chancellor of the kingdom. He has power to create nobility within his own archi-episcopal dominions, and possesses an annual revenue of £36,000 sterling. The emperor is considered as the head of the church, and in Hungary is considered as pope. He appoints bishops, regulates their incomes, establishes or suppresses monasteries at his pleasure, and frequently applies their revenues to other purposes.

In point of literature Austria is, at present, greatly behind the other provinces of Germany, owing to the unpolished state of the languages; their want of connexion with the more refined and classical tongues of Europe, together with the restrictions of government. The influence of bigotry, too, has often blasted the bud of genius, and neutralized every effort to promote its development and perfection. There are, however, a few names of eminence in various departments of knowledge; and the arts and sciences are now said to be upon the advance in Austria, but in the fine arts, it would be difficult to find an eminent sculptor or a good painter. Architecture is so little cultivated, that their best public buildings are generally planned by foreigners. In the mechanical arts they have evinced considerable native genius; but like that of the Germans, generally, its efforts have seldom been directed to any useful purpose. One mechanic has constructed a machine that performs all the functions of an expert chess player; another has made a head capable of imitating all the varied sounds of the

human voice; and a third has invented an instrument that emits, simultaneously, all the sounds of music. In the latter science they have been thought to excel, and the names of Hadyn and Mozart, whose powers and taste were formed at Vienna, have sufficiently established their national fame. In mathematics, astronomy, and botany, they have also succeeded to a certain extent; and amongst the numerous professors of these sciences, Burke, and the Abbe Treisnecker, have eminently distinguished themselves. But education, and consequently general knowledge, in Austria has been much neglected. The empress Maria Theresa, who patronised learning, established schools in every part of the empire; which, with others that have since been added, have in a measure relieved the intellectual gloom which for so long a period shrouded the south of Germany. Universities, lyceums, district academies, gymnasiums, Latin schools, schools for teaching their native tongue, schools for diffusing the elements of religion, are now universal; and are supported at the expense of government. The young men are compelled to attend the line of study marked out for them, under pain of forfeiting all civil offices and employments.

In Vienna, alone, are sixty schools for instructing the poor in reading, writing, and arithmetic; one normal school, preparatory to the gymnasium; three gymnasia, in which the studies prescribed by government are, mathematics, geography, history, natural history, arithmetic, composition, classics, and religion; the Theresian academy, for the sons of the Catholic nobility and foreigners of distinction, under the care of a director, twenty-one professors, ten masters of modern languages, and several additional tutors; and an university, provided with forty-five professors, extra teachers, &c. The school of surgery at Vienna, is considerable; there are also imperial medical academies, imperial military academies, imperial polytechnic schools, for teaching the scientific principles of all trades and manufactures, and an imperial academy of oriental languages. Their universities, besides Vienna, are Prague, Pesh, Erlau, Lemberg, Milan, Mantua, Padua, and Pavia. To many of these public institutions are attached extensive libraries. That connected with the university of Vienna contains 90,000 volumes, and the Imperial library upwards of 200,000. The doors of the latter are regularly open several hours in the day for the use of the citizens, who are permitted to read any of the volumes in apartments provided for that purpose.

The languages of Austria are several, of which the Gothic or German is most prevalent. The Sclavonic is common in part of Hungary, Galicia, Bohemia, and Moravia. The proper Hungarian is a dialect of the Scythian. Latin is also spoken in Hungary; and on the borders of Turkey the Walachian language, which is a corruption of the Latin, is prevalent. The Italian is the common language of the southern provinces, and French is spoken by the higher classes.

The Austrians are, generally speaking, handsome and athletic, of German origin, mixed insensibly with the native inhabitants of Italy, Hungary, and Bohemia. The grand German outline is still visible, accompanied with the darker complexion, bolder features, blacker eyes, and more animated expression, which distinguish the countenance of the Austrian from those of his northern neighbours. They are a sensual people, but sensuality never enervates them. They possess an instinctive indifference to what would excite all the passions of an Englishman, and would rush from the ball to the battle, from the comic theatre to the field of blood, with apparent indifference; owing not to phlegmatic coldness, but to a peculiar felicity of temperament, which nature has conferred upon the constitution of the Austrian, by which he possesses an astonishing power of forbearance and self-command. The persons, manners, and accomplishments of the Austrian females have considerably attracted the attention of modern travellers, and have called forth some very lively and pertinent remarks from the pen of Mr. Lemaistre. 'The Austrian ladies,' says he, 'are the handsomest women I have seen on the continent; their countenances are expressive, and their complexions uncommonly fair. In beauty they are exceeded by no females in Europe; excepting only our own country-women, whose unrivalled superiority I believe is universally acknowledged. In manner they are elegant, and in conversation lively and well informed. Much greater attention seems to have been paid to their education, than is usual in other parts of the continent: all of them speak French with as much fluency as German, and some are proficients in English. The best works in these languages are familiar to them. They are completely free from pedantry; and I have had frequent reason to admire the taste and knowledge displayed in their remarks.' But as Austria is composed of separate kingdoms and states, whose manners and habits are many of them peculiar, we defer further particular observations on this till we come to treat of those states separately.

If we except Bohemia, Moravia, the northern parts of Austria, and a part of Hungary, this kingdom formed an integral part of the Roman empire, and abounds in antiquities and curiosities both natural and artificial. Castles, churches, and monasteries are common everywhere, whilst the southern parts, being near the centre of Roman power, are proportionably rich in ancient remains. The amphitheatre of Pola, about forty miles south of Trieste, stands near the extremity of a small peninsula, on the eastern shore of the Adriatic. This ancient edifice is elliptical in its figure, having three floors and rustic arcades, like the outer wall of the amphitheatre at Verona. Its length is 416 feet, and height ninety-seven feet. This is the only one of the ancient Roman elliptical precincts that now remains entire, those of Rome and Verona being much broken and dilapidated. Some imagine it to have been a theatre, and not an amphitheatre, because the seats only occupy one side, and are formed on the declivity of a hill. The amphitheatre at Verona is another building of the same description, though not so large, as the Coliseum at Rome; only a small part of the wall is standing, and the rest of the building scarcely rises above the summits of the surrounding houses. The seats

within, constructed of stone, were renewed in the sixteenth century, and now form the surface of a large hollow inverted cone, capable of accommodating upwards of 22,000 persons. A part of these seats are enclosed in a small wooden theatre, in which plays are performed during the summer. The structure exhibits a fine specimen of Roman architecture, composed of squared masses of marble from Sant. Ambrosio, about nine miles distant. The soffit stones of the arcades are nine feet long. Some parts of the building are composed of large flat bricks, which have withstood the action of the sun and weather for 1700 years, and yet remain uninjured by time. The precinct of this ancient amphitheatre is 522 feet long, embellished by three tiers of rusticated arcades, ninety-six feet high, and before the falling of the fourth story of rectangular windows, presented a grand and pleasing appearance. The disposition of the seats, and of the stairs leading to them, is better seen in this amphitheatre than in any other Roman antiquities of the same kind; and the remains generally are in a better state of preservation. See AMPHITHEATRE.

The natural curiosities of Austria are numerous and interesting. The various Alpine scenery, glaciers, chasms, caves, curious depositions of stones, &c. have in all ages commanded the admiration of the traveller, and the attention of the antiquarian. Austria Proper contains a singular assemblage of rocks, near Trautenau in Bohemia, in the shape of flowers, reaching from fifty to 100 feet in perpendicular altitude, and of great extent; supposed to be the remains of a mountain, the intermediate parts of which have been removed. Near Szadello, about thirty miles north-west of Kaschau in Hungary, is a celebrated cavern, which runs under the mountains to the distance of several miles, and has never been completely explored. It includes a multiplicity of distinct caves and winding passages, separated by numerous impending stalactites; the whole forming so intricate a labyrinth, that Dr. Townson, who visited this country a few years ago, says, 'a man once lost in it, though he had lights and food to last him a month, would not be able to find his way out.' A party of curious travellers, it is said, once remained in it for three days without being able to explore its dimensions, or reach the opening. Near Szalitze, in the Carpathian range, is another remarkable cavern, within which is a small glacier; and at Demanovo is a curious cave, which contains the bones of numerous wild animals. Various other subterranean domes and caverns have also been found in all parts of the calcareous mountains, beneath the towering summits of the Alpine regions. The lake of Czirknitz, in the Illyrian provinces eastward of Trieste, is one of the most singular natural curiosities of the Austrian territories. It is about four English miles in length, and nearly that measure in breadth, surrounded with mountains on all sides, and of the depth of five or six feet. Although there is no visible place for the discharge of them, in June or July the waters subside, and at length are seen to retire into a number of caverns at the bottom of the lake; the herbage of the bed then begins to grow rapidly, and produces considerable crops, which are cut and preserved; after which the ground is grazed by cattle. In November, when the rains fall upon the adjacent hills, the waters issue again from their caverns, swell by reason of still gathering accessions, and spread into a perfect lake as before. The lake of Jessero, in the isle of Cherso, is classed among the natural curiosities of Austria, and said to discharge its waters but once in four or five years. In the same island are several curious caverns, in which have been found numerous fossil bones of oxen, horses, sheep, and other animals; amongst which none have been recognised as human. The salt-mines of Wieliczka, on the confines of Poland, exceed description; and those near Salzburg, on the western border of Austria, present an appearance so magnificent and sublime, as to be rated among the most stupendous and astonishing phenomena of Europe.

The islands belonging to Austria are few and unimportant, lying along the north-east shore of the Adriatic, from the Gulf of Juarnero to the southern point of Dalmatia. The principal are, Veglia, Osero, Grossa, Cherso, Lesina, Melida, and Brazza.

Of the provinces which make up the grand imperial dominions of Austria, many of them have constitutions different from each other Hungary, as an hereditary and limited monarchy, has been in the house of Austria ever since the year 1437, when the archduke, having married the only daughter of king Sigismund, succeeded to the crown. The nation, however, shares the legislative and executive power with the emperor, who exercises his authority only through the medium of the States, a kind of parliament assembling at fixed periods for the transaction of public business. The Hungarian nobility also possess great power; and they alone, in state language, are included under the appellation of the Hungarian people, the rest being regarded as an inferior race of beings. Bohemia, Moravia, and the Tyrolese, also have an influence in the general government, and possess, to a certain degree, the privileges of Hungary. But in most of the provincial diets, the authority of the crown is so great, that the representatives can determine little else than the mode of raising taxes, so that the emperor is in a considerable degree unlimited in his sovereignty. In the ancient diet of the empire, Austria, independent of her electoral vote for Bohemia, had seven votes in the college of princes for the seven states of Austria Proper, Carinthia, Styria, Brixen, Trent, Tyrol, and Carniola. In the new diet, or 'confederation of the sovereigns and free towns of Germany,' formed in 1815, Austria, without having any superiority over the other states in point of rank, was declared by the Congress of Vienna (act fifty-seventh), to have the presidency with a vote. In the general assembly Austria has now four votes. The executive government consists of four great departments, established at Vienna, organized originally by the counsels of Maria Theresa. One of these regulates the internal concerns of the empire, another its foreign affairs, a third its military conduct, and the fourth the government of Hungary. These different parts of the administration are identified in numerous

boards, chanceries, councils, ministries, &c. The laws and jurisprudence of his imperial and royal apostolic Majesty's dominions, are in the general very vague and complicated. Bohemia and Moravia are divided into circles, each under a separate court of judicature from which lies a right of appeal to the supreme tribunal in the provincial capital. Every county in Hungary has its ruling assembly and court of justice, subject to an appeal to the district judicature, thence to the royal tribunal at Buda, and thence to the king in person. A new code of mild and salutary laws has however been recently drawn up at the instance of the government, and promulgated; the criminal part, in 1804, and the civil in 1812; which are made the universal code of jurisprudence for the the Austrian empire.

The entire revenue of Austria has been calculated at twenty-two millions, arising chiefly from taxes on the land, and articles of internal consumption. Joseph II. proposed a new land and poll tax, which has since been lucrative. The imperial domains, monopoly of tobacco, duties on stamps, hair-powder, glass, china, starch, wine, beer, brandy, carriages, legacy duties, fees on titles of nobility, toleration tax on the Jews; together with the duties arising from the crown lands, mines, coining, salt, tolls, fines, penalties, passing the frontiers, incomes upon vacant bishoprics, salaries, pensions, &c. of Hungary, constitute a considerable part of the above sum. Paper money has been frequently employed by Austria in her distress; and bank notes to the amount of £100,000,000 were in circulation as recently as 1810. The national debt, before the French revolution, amounted to £20,000,000, in 1805, it had increased to £80,000,000, and is at present £150,000,000. Of this two-thirds was created by the issue of paper money, which, however, is not deemed re-payable at its nominal amount.

The military establishment of Austria under Joseph II. rose into considerable importance; and in 1784, though a season of peace, the Austrians were able to muster more than 200,000 men; and after the French revolution, at the peace of 1797, they kept in pay an army of nearly 300,000. There were lately in the Austrian army no fewer than nine field-marshals, twenty-one generals of artillery, thirteen generals of cavalry 136 lieut.-generals, 258 major-generals. Since 1805, however, the troops of Austria were greatly reduced, till she reached her ebb in 1809, having lost about one-eighth part of her population, and one-tenth of her resources. Afterwards her army amounted to 470,000 men; and in the campaign of 1813 and 1814, when she took the field afresh against the common enemy, her troops were more numerous than at any former period. Austria at present, as one of the united kingdoms, supplies 94,822 men to the military establishments of the German Confederacy, which is one in every hundred of her population in Germany, and, allowing the same proportion for all the other parts of the empire, the standing army of Austria will amount to 280,000 men. The Bohemian army is, however, stated at 50,000 men, which is about one in every sixty-four of the population. The Hungarian army is calculated at twelve regiments of infantry, and ten of hussars, the former consisting each of 3837 men, and the latter of 1698, forming an aggregate of 63,000; which, compared with seven millions and a half, the present population of Hungary, yields about the proportion of one to every hundred and twenty. The Hungarian army consists of three separate classes of individuals—the nobles, who are called together at the pleasure of the sovereign; the standing army, kept up by recruiting and conscription; and those of the military frontiers, where every man holds his possessions on condition of being ready to take up arms when called upon. Austria has nothing that deserves the name of a maritime force, but provides a few frigates and armed vessels for the protection of trade. The vessels called tschaiken, manned with about 1000 seamen and soldiers, are placed on the Danube towards the Turkish frontiers at the expense of government. There are in the Austrian states the following orders, having the emperor or empress at their head: the Golden Fleece, Maria Theresa, St. Stephen, Elizabeth, and the Star and Cross.

Of the political and historical memoirs of Austria, the reader will be able to form but a very imperfect idea. To write the history of a kingdom composed of kingdoms, with separate histories of their own; kingdoms too, which have been connected with other kingdoms, and those kingdoms, which have made a figure upon the earth, have balanced for ages the crisis of European power and politics, have given rise to governments, laws, manners, and language, and to surrounding nations, whose histories have also been embarked upon the stream of time, and intermingled with the politics of other states, is a work of no small difficulty. The Austrian history, if not obscure, is at least perplexed. The revolutions, alike incident to all human governments, the fluctuations of empire, the ebb and flow of territory, have been so frequent and considerable, that the high and low water mark of boundary at different periods of history, during the spring and neap tides of national influence and power, are only to be sought successfully in larger geographical treatises, and would require a distinct detail of relation beyond what the limits of an encyclopædia can possibly allow.

The original population of Austria was principally Gothic and Sclavonic, and the descendants of the former still constitute the principal part of the inhabitants. Moravia and Bohemia were stocked by the latter, whilst the southern territories were inhabited by the descendants of the cisalpine Gauls, and the Roman colonies, which had been planted there. Only a small part of the present imperial dominions belonged originally to the house of Austria. The vicissitudes to which it has been subject from the period of its origination, are what have chiefly contributed to raise the empire to its present rank among European sovereignties, and to trace those vicissitudes down the variable narrative of their political story, affords an interesting topic in geographical speculation.

The princes of these houses are descended from the ancient dukes of Alsace, and bore the title of counts of Hapsburg, from the castle of

that name in the Aar on Switzerland, their patrimonial residence, before their accession to the imperial throne of Germany. In 1273 count Rodolph was elected king of the Romans, and bestowed the duchy on his son Albert, with whom, therefore, the house of Austria commences. This duchy was formed of the ancient margraviate, with that part of Bavaria situated above the river Enns; and passed to the house of Hapsburg as a fief of the empire, on the extinction of the old ducal family. The counts of Hapsburg at that time possessed a great part of Oberland in Switzerland, and a considerable portion of Suabia, to which, in 1284, were added Styria, Carinthia, and Carniola. But Albert, who was elected king of the Romans in 1298, during the revolutionary troubles of Switzerland, which happened about nine years after his accession, lost all his hereditary possessions in that country. The acquisition of Tyrol in 1364 made some addition, and Albert II. the next duke of Austria, was invested, in 1438, with the imperial purple, which has, ever since that period, been retained by his descendants in almost uninterrupted succession. The emperor Maximilian, grandfather to Charles V. acquired the territory of the low countries by marriage, and in like manner his son Philip, espousing the heiress of the Spanish crown, obtained the possession of that kingdom, with the dominion of the American colonies. At his decease the united kingdoms of Austria, Spain, and Spanish America, descended to his successor Charles V. who, about the year 1527, added those of Hungary, Bohemia, Moravia, Silesia, and Lusatia, when Austria appeared in the zenith of her glory. In 1556 Charles V. made over the Spanish dominions, and the Netherlands, to his son Philip II. under whom they suffered considerable diminution; the seven united provinces of the Netherlands entirely throwing off their allegiance. In 1648, at the conclusion of the thirty years war, Austria was obliged to relinquish the two provinces of Lusatia and Alsace, ceding the former to the elector of Saxony, and the latter to the king of France; but shortly after the emperor Leopold, son of Ferdinand III. added the whole of Transylvania, and considerably enlarged the boundaries of Hungary, after which few fluctuations occurred in the empire till the reign of Charles VI. when the peace of Utrecht in 1713, and the Barrier Treaty, two years afterwards, added Belgium, the duchy of Milan, the kingdom of Naples, and the island of Sardinia, which last was six years afterwards exchanged with the duke of Savoy, for the isle of Sicily. By the peace of Passarowitz, in 1718, Charles VI. acquired the Bannat of Temeswar, Belgrade, part of Servia, Bosnia, and Walachia; all of which, however, except the Bannat, were restored to the Porte in 1739. In 1735, after an unsuccessful opposition to France, the kingdom of Naples, and the island of Sicily, were made over by the Emperor to the infant Don Carlos of Spain, in exchange for the duchies of Parma and Placentia. At last, after various changes, as well in the outline as in the inward policy of the empire, Charles VI. died, in 1740, and with him ended the male succession of the Hapsburg house of Austria.

Maria Theresa, eldest daughter and heiress of the deceased emperor, was married, in 1736, to Francis duke of Lorraine, afterwards grand duke of Tuscany; and immediately on her advance to the sovereignty had to carry on a long and extensive war against Prussia, Saxony, Bavaria, and Spain; all of whom made pretensions to some part or parts of her dominions. After a powerful but unsuccessful struggle for empire, Prussia, in the year 1742, obtained the greater part of Silesia, and the country of Glatz; and Spain, about six years afterwards, took possession of the duchies of Parma, Placentia, and Guastalla. The war of 1756 producing no remarkable change of territories, the Austrian boundaries continued the same, with little variation, till the partial dismemberment of Poland, in 1773, when she acquired Galicia and Ladomaria; and was still further augmented, in 1777, by the addition of the Bukowine; and in 1778, by the accession of the Innviertel on the side of Bavaria.

The first emperor of the Lorraine branch was Joseph II. who, after sharing the government with his mother Maria Theresa for several years anterior to her decease, was fully vested with the sovereignty in 1780. His reforms in the executive branches of government, abolition of sinecures, suppression of convents, modification of the dependence of the clergy upon Rome, and the perfect toleration of all dissenters, though they have been censured as the extreme of imprudence, were decidedly promoted for the consolidation of his immense territories, the manumission of his subjects from the civil disabilities under which many of them labored, and the establishment of a more worthy system of regular administration. To whatever extent such measures might have been neutralized by an obvious precipitancy, and rashness in the mode of execution, they show a great monarch, influenced by the best of principles, laboring in the common cause of humanity, justice, and patriotism; directing all his efforts towards the happiness of his people, and the welfare of his dominions. It is said that a visit which he received from pope Pius VI. two years after his accession, effected no alteration in his designs. After an active but variable reign, rendered remarkable towards the close, by a new war with the Turks, he died on the 20th of February, in the year 1790, and was succeeded by his brother Leopold II. who died at the commencement of the revolutionary war, on the 1st of March, 1792. The crown of Austria then descended to his eldest son, Francis II. the present emperor, and the sovereignty of the grand duchy of Tuscany to his second son Ferdinand. From this time the empire of Austria began to decline.

At this period the population of the empire was estimated at 25,000,000, and was increased, in 1796, by the accession of a great part of Poland, which was then finally dismembered and divided between Austria, Russia, and Prussia: but it was reduced to little more than its former amount the following year by ceding to France, Lombardy, the

Netherlands, and all the Austrian districts on the left bank of the Rhine. The war of 1799 gave early hopes of success, but the withdrawment of Russia from the coalition, and the fatal days of Marengo and Hohenlinden, obliged Austria to conclude a treaty with France in 1801; in which, although she obtained Saltzburg and Berchtologaden, she was deprived of nearly all her Venetian states. The third war, in 1805, proved still shorter and more disastrous; and after the overthrow at Ulm and Austerlitz, the remainder of the Venetian states, Tyrol and Suabian principalities, containing a population of 3,000,000, were given as the price of peace; a period was likewise put to the Germanic constitution, and the title of Emperor of Austria substituted for Emperor of Germany and King of the Romans. In 1809 the resistance of Spain to Buonaparte prompted Austria to enter upon a new war with France. Her army was numerous and well disciplined, and a large portion of the French was employed in the peninsula; but the decided neutrality of Prussia, and the circumstance of Russia and Bavaria, with the states composing the confederation of the Rhine, taking part against Austria, enabled Bonaparte to acquire a decided victory, and once more to enter Vienna. This led to further losses, but left the emperor no alternative but a treaty; the terms were the union of the emperor's daughter with Napoleon in marriage, and the sacrifice of considerable territory and population; namely, the provinces of Carniola, Trieste, Villach, the greater part of Croatia, and Agram, West Galicia, the circle of Zamosc, a circle in East Galicia, the greater half of Hansruckviertel, the Innviertel, Berchtolsgaden, and Saltzburg, the whole including 45,000 square miles and nearly three millions and a half of inhabitants. Austria remained overawed by France until the destruction of the French armies in Russia, when she again asserted her independence; and the subsequent success of the allies reinstated her in more than her former splendor. The ninety-third act of the Congress of Vienna restored nearly all that had been lost, while the succeeding one annexed several others on the side of Italy, which more than compensated for the remaining deficiency. The dominions of the Austrian empire, as fixed by this congress, have, according to Blumenbach, been divided into twenty-one provinces, or governments, besides the four dependent states. To these he assigns the following extent and population.

I.—AUSTRIAN EMPIRE.				Ger. sq. miles.	Inhabitants.
1.	The kingdom of Bohemia			956·80	3,203,222
2.	The margraviate of Moravia			417·64	1,680,935
3.	The dukedom of Silesia			86·85	
4.	Austria below the Enns			363·65	1,048,324
		Ger. sq. miles.	Inhabitants.		
5.	Austria above the Enns	151·86	417,625	344·32	756,897
	Circle of the Inn and Hansruck	59·92	197,537		
	Saltzburgh	132·54	141,699		
6.	The duchy of Styria			398·98	799,056
7.	The duchy of Carinthia			190·90	278,500
8.	Illyria	190·61	358,831	250·95	467,836
	Part of Croatia	60·34	108,205		
9.	The coast district			176·18	422,861
10.	Tyrol and Voralberg			520·44	717,542
11.	The Lombardo-Venetian kingdom			867·50	4,111,535
12.	The government of Dalmatia			274·94	295,089
13.	The kingdom of Galicia			1526·12	3,755,454
14.	Civil Hungary, Croatia and Sclavonia			4097·06	8,200,000
15.	Civil Transylvania			1118·70	1,510,000
16.	Transylvanian military frontiers				
17.	Bannat frontiers			186·00	171,675
18.	Sclavonian frontiers			139·40	230,079
19.	Warasdiner military government			67·40	107,217
20.	Carlstadter military government			166·40	188,906
21.	Bannat regiments			54·20	95,442
				12,204·43	28,040,570
	II.—Dependent States.				
1.	Grand dukedom of Tuscany			431·00	1,170,000
2.	Dukedom of Modena			92·31	375,000
3.	Dukedom of Massa and Carrara, with Garfagnana			23·00	60,000
4.	Dukedom of Parma			101·62	383,000
				647·93	1,988,000

Austria, San Felippe de, a city of South America, in the province and government of Cumana, forty-eight miles from Cumana, and containing 250 families. Long. 63° 41′ W., lat. 10° 31′ N. There is another small place of the same name, four leagues south-west of Cumana.

Austriacus, in ornithology, a species of falco, named by Latham the Austrian kite. *Gmelin.*

AUSTRO AFRICUS, the S. S. W. wind.

AUSTROMANCY, AUSTROMANTIA, properly denotes soothsaying, or a vain method of predicting futurity, from observations of the winds.

AUSTURCUS, or OSTURCUS, in ornithology, a goshawk; from whence we usually call a falconer, who keeps that kind of hawks, an ostringer. In ancient deeds, there has been reserved, as a rent to the lord, unum austurcum.

AUSURIANI, in Roman antiquity, a military order, similar to that of hussars among the moderns.

AUTENIGUA, the name given by the natives to a region of southern Africa, on the east of the Cape of Good Hope; and signifying, in their language, the land of honey. It now forms part of the district of Zwellendam, and is represented by Vaillant as a delightful region, having a great variety of surface and scenery, great fertility, and abundance of honey. It was partially inhabited by Dutch colonists, whilst in possession of that nation; but it has been much improved since it came under the authority of the English. It abounds with all the wild animals common to southern Africa. See ZWELLENDAM.

AUTENOW, a town of Russia, in the government of Kiov, eighteen miles W. S. W. of Bialacerkier.

AUTER DROIT, in law, is where persons sue, or are sued, in another's right; as executors, administrators, &c.

AUTER VIE; in law, a person who holds an estate by the life of another is usually called tenant per auter vie.

AUTHEN'TICATE, AUTHEN'TICAL, AUTHEN'TICALLY, AUTHEN'TICALNESS, AUTHENTI'CITY, AUTHENTICK, AUTHEN'TICKLY, AUTHENTICK'NESS] Gr. *αυθεντικως*, Lat. cum auctoritate, with authority. Certo auctore, the author being well known; to make known the author, to give up the author, or authority; to refer to; to rely on information; to vouch for the truth of a statement. Authentic seems to have been the proper epithet for a physician regularly bred or licensed. The diploma of a licentiate runs, 'Authentice licentiatus.'

Thirdly, it appeareth by regesters and recordes judicially and *autentiquely* made, yet preserued for confirmation of the same. *Hall.* Henry VIII.

This point is dubious, and not yet *authentically* decided. *Brown's Vulgar Errours.*

Of statutes made before time of memory, we have no *authentical* records, but only transcripts. *Hale.*

Thou art wont his great *authentick* will
Interpreter through highest heaven to bring.
Milton.

She joy'd th' *authentick* news to hear,
Of what she guess'd before with jealous fear.
Cowley.

Conscience never commands or forbids any thing *authentically*, but there is some law of God which commands or forbids it first. *South.*

But censure's to be understood
The *authentick* mark of the elect,
The public stamp heav'n sets on all that's great and good. *Swift.*

Nothing can be more pleasant than to see virtuosos about a cabinet of medals, descanting upon the value, rarity, and *authenticalness* of the several pieces.
Addison.

The nations that, according to the best *authenticated* history, appear to have been first civilized, were those that dwelt around the coast of the Mediterranean sea.
Smith's Wealth of Nations.

AUTHENTICS, AUTHENTICÆ, in the civil law, is a name given to the Novels of Justinian. The reason of the denomination is not well known. Alciat will have it to have been first given them by Accursius. These novels were originally composed in Greek, and afterwards translated into Latin by the patrician Julian, who reduced them into less compass. And in the time of Bulgaris, there was a second version made, more exact and literal, though not quite so elegant as the former. This translation being preferred by Accursius, he called it authentica, by way of preference to that of Julian, as being more conformable to the original. They are hereby distinguished from some other publications of later imperial constitutions, which are not regarded as of much authority.

AUTHIE, a river of France, which rises in the department of the Straits of Calais, and falls into the sea between the Somme and the Canche.

AUTHON (John d') a French historian of the sixteenth century, abbot of Angle in Poitou. He wrote the history of France from 1490 to 1508, which has never been all printed. He died in 1523.

AU'THOR, *v.* & *n.*, AU'THORESS, AUTHOR'ITATIVE, AUTHOR'ITATIVELY, AUTHOR'ITY, AUTHORIZA'TION, AU'THORIZE, AU'THORLESS, AU'THORSHIP.] Some contend for the Latin *auctor*, from *augeo*, *auctum*, to increase, i. e. to carry on an undertaking. It seems to relate more to the ground than to the form of the work. Others refer its origin to *αυθεντικως*, or the root which it represents. Whether this etymology be admitted or not, the verb and its correlatives convey the ideas of beginning, creation, foundation, invention, countenance, support, and power.

They consider the main consent of all the churches in the whole world, witnessing the sacred *authority* of Scripture, ever sithence the first publication thereof, even till this present day and hour *Hooker.*

ISAB. O but man, proud man,
Drest in a little brief *authority*,
Most ignorant of what he's most assured,
His glassy essence like an angry ape,
Plays such fantastick tricks before high heav'n,
As makes the angels weep.
Shakspeare. Measure for Measure.

Idle old man,
That still would manage those *authorities*
That he hath giv'n away! *Id. King Lear.*

That which is the strength of their amity, shall prove the immediate *author* of their variance.
Shakspeare.

I know, my lord,
If law, *authority*, and pow'r deny not,
It will go hard with poor Antonio. *Id.*

But I suffer not a woman to teach, nor to usurp *authority* over the man, but to be in silence.
Paul.

War mends but few, but spoils multitudes; it legitimates rapine, and *authorises* murther.
Jeremy Taylor.

Although their intention be sincere, yet doth it notoriously strengthen vulgar errour, and *authorize* opinions injurious unto truth. *Brown's Vulgar Errours.*

Now while the tortur'd savage turns around,
And flings about his foam, impatient of the wound;
The wound's great *author* close at hand provokes
His rage. *Dryden's Fables.*

Yourself first made that title which I claim,
First bid me love, and *authoriz'd* my flame.
Dryden.

The obligation of laws arises not from their matter, but from their admission and reception, and *authorization* in this kingdom. *Hale.*

Power arising from strength, is always in those that are governed, who are many: but *authority* arising from opinion, is in those that govern, who are few. *Temple.*

The woods are fitter to give rules than cities, where those that call themselves civil and rational, go out of their way, by the *authority* of example. *Locke.*

The faith or persuasion of a Divine revelation is a Divine faith, not only with respect to the object of it, but likewise in respect to the *author* of it, which is the Divine spirit. *Tillotson.*

From his loins
New *authors* of dissension spring; from him
Two branches, that in hosting long contend
For sov'reign sway. *Philips.*

A more decisive proof cannot be given of the full conviction of the British nation, that the principles of the Revolution did not *authorize* them to elect kings at pleasure, than their continuing to adopt a plan of hereditary protestant succession in the old line. *Burke.*

AUTOCABDALI, in antiquity, an order of musicians, who wore an ivy crown or garland. Scaliger seems to rank them in the number of mimi.

AUTOCEPHALUS; from *αυτος*, ipse, and *κεφαλη*, head; a person who has no one over him. This denomination was given, by the Greeks, to certain archbishops who were exempted from the jurisdiction of patriarchs. There were several other bishops in the east, who were autocephali; and in the west those of Ravenna pretend to the same right.

AUTOCHTHONES, an appellation assumed by some nations, importing that they sprung, or were produced, from the same soil which they still inhabited. In this sense autocthones amounts to the same with aborigines. The Athenians valued themselves on their being autochthones, self-born, or *γηγενεις*, earth-born; see ATTICA, it being the prevailing opinion among the ancients that, in the beginning, the earth, by some prolific power, produced men, as it still does plants.

AUTO'CRAT, AUTOC'RASY, AUTOCRAT'ICAL, AUTOCRATOR'ICAL. Gr. *αυτος*, himself, and *κρατος*, power; the possessor of uncontrollable power. The emperor of Russia is styled the 'autocrat of all the Russias.'

The Divine will is absolute; it is its own reason: it is both the producer and the ground of all its acts. It moves not by the external impulse or inclination of objects, but determines itself by an absolute *autocrasy*. *South's Sermons*, x.

The Father, Son, and Holy Ghost, in respect of the same divinity, have the same *autocratorical* power, dominion, and authority. *Pearson on the Creed.*

AUTOCRATOR; from *αυτος*, himself, and *κρατος*, power; a person vested with an absolute independent power, by which he is rendered unaccountable to any other for his actions. The power of the Athenian generals, or commanders, was usually limited: so that at the expiration of their office, they were liable to render an account of their administration. But, on extraordinary occasions, they were exempted from this restraint, and sent with uncontrollable authority: in which case they were styled *Αυτοκρατορες*. The same people also applied the name to some of their ambassadors, who were vested with a full power of determining matters according to their own discretion. These were denominated *Πρεσβεις Αυτοκρατορες*, and resembled our plenipotentiaries.

AUTO DA FE, or act of faith. See ACT.

AUTODIDACTUS; from *αυτος* and *διδασκω*, to learn; a person self-taught, or who has had no master or assistant of his studies.

AUTOGENIAL; from *αυτος* and *γιγνομαι*, to beget; self-begotten.

AUTOGLYPHUS LAPIS, a stone mentioned by Plutarch, as having naturally impressed on it the figure of Cybele. It is said to have been found in Sagaris a river of Persia. Doubtless if any such stone ever existed, the priests had it made to deceive the people.

AUT'OGRAPH, *αυτος*, myself, and *γραφω*, I write. An original manuscript.

He did accurately describe and turn into Latin from the original *autographe* in Cambridge public library. *Wood's Athenæ Oxonienses.*

AUTOLITHOTOMUS, one who cuts himself for the stone. Of this we have a very extraordinary instance given by Reiselius, in the Ephemerides of the Academy Natura Curiosorum, dec. 1, an. 3, obs. 192.

AUTOLOGIST; from *αυτος*, self, and *λογος*, speech; one who speaks much of himself.

AUTOLOGY, speaking of or to one's self.

AUTOLOLÆ, an ancient people of Mauritania, descended from the Gætuli. They excelled all their neighbours in running.

AUTOLYCUS, in fabulous history, a son of Mercury by Chione, a daughter of Dædalion. He was one of the Argonauts, famous for his cunning as a thief. After stealing the flocks of his neighbours, he altered their marks, and mingled them with his own. But Sisyphus, son of Æolus, discovered his craft; and when Autolycus stole his flocks, he picked out his own by a mark which he had made under their feet. The artifice of Sisyphus pleased Autolycus so much, that he directly formed an intimacy with him, and even allowed him freely to enjoy the company of his daughter Anticlea, who became pregnant of Ulysses, and was soon after espoused to Laertes.

AUTOLYCUS, a Greek mathematician and astronomer of Pitane, in Æolia, who flourished about 320 years before Christ. He was preceptor in mathematics to Arcesilaus, who was also a disciple of Theophrastus, the successor of Aristotle. His works extant are, a Treatise on the Movable Sphere, published by Dasypodius in Greek and Latin, 8vo. at Strasburg, in 1758; and in a Latin translation in the Synopsis Ma-

thematica of Mersennus, published in 4to. at Paris, in 1644; and also a Treatise on the Rising and Setting of the Stars, edited, with the former work, by Dasypodius. Diog. Laert. Vit. Arcesil. Fabr. Bid. Græc. tom. ii. p. 89. Montucla, Hist. Mathem. t. i. p. 192.

AUTOMATE, called also HIERA, one of the Cyclades, an island on the north of Crete, said to have emerged out of the sea, between the islands Thera and Therana, in the fifth year of the emperor Claudius; in extent thirty stadia.

AUTOM'ATON, AUTOM'ATOUS, AUTOMA'TIC. } Gr. Αυτοματος. Ex. *ματην*, frustra, vel *μαομαι*, excitor. Something self-moved; deriving its motion from internal machinery.

Clocks, or *automatous* organs, whereby we distinguish of time, have no mention in ancient writers.
Brown's Vulgar Errours.

For it is greater to understand the art whereby the Almighty governs the motions of the great *automaton*, than to have learned the intrigues of policy.
Glanville's Scepsis.

The particular circumstances for which the *automata* of this kind are most eminent, may be reduced to four.
Wilkins.

AUTOMATON may be farther defined, a machine, so constructed by means of weights, levers, springs, wheels, &c. as to move for a considerable time, as if endued with animal life. According to this definition, clocks, watches, and all machines of that kind may be ranked as a species of automata. But the word is most commonly applied to such machines as are made in the form of men and other animals, at the same time that their internal machinery is so contrived, that they seem voluntarily to act like the animals they represent. It has fallen in the way of the writer of this paper to have been making a few collections on this subject for some years past; and, observing that the whole direction of mechanical genius to these inventions has at present terminated in amusing, rather than any particularly useful machines, he has often entertained himself with considering the powers of man as a mere animal machine, in contrast with their inventions; the highest and best of which imitate his motions.

Political economists have frequently amused themselves and the public with the nicely-balanced powers of man as a propagating and eating animal, and philosophers and divines often assure us that he is, in other and higher respects, but a machine of a superior description; in especial deference to the latter grave authorities, we, therefore, take it for granted in this paper, that man is a machine, and shall not presume to arrogate for him any higher pretensions. We know nothing of his impulses as an animal, nor of the duties or influences to which he is subject as a rational being, if such he be; we only propose to introduce to our readers a variety of claimants for the honor of having made a part of him—of imitating portions of his organs, in their actual exercise—and isolated actions of his very mind. What wonder, if, in the progress of these efforts, our artists should occasionally have struck off a complete and clever duck, a learned fly, or a royal eagle!

Automata have been favorite objects of mechanical contrivance from a very early period. If the term, indeed, may be allowed to include what some writers have considered under it, their history would quickly swell into a volume. The celebrated Glanville, for instance, speaks of 'the art whereby the Almighty governs the motions of the great automaton' of the universe! Bishop Wilkins ranks the sphere of Archimedes amongst the *αυτοματα στατα*, 'or such as move only according to the contrivance of their several parts, and not according to their whole frame.' It was, in fact, an early orrery, according to Claudian:

Jupiter in parvo cum cerneret æthera vitro,
Risit, et ad superos talia dicta dedit;
Huccine mortalis progressa potentia curæ?
Jam meus in fragili luditur orbe labor, &c.

This learned prelate has even extended the application of the term to machines moved, in consequence of their peculiar construction, by external forces or elements, as mills, ships, &c. Its modern acceptation, however, and that to which we shall restrict ourselves, will not include all machines that are self, or internally moved. It is confined to the mechanical imitations of the functions and actions of living animals, and particularly those of man.

The celebrated story of the statue of Memnon, one of the wonders of Ancient Egypt, has some pretensions to lead the way in this historical sketch. We have positive testimony (Strabo, lib. xvii.) to the circumstance of the most beautiful sounds being emitted from this statue, at the rising and setting of the sun; and from the pedestal, after the statue was overthrown. What was the contrivance in this case, it may be vain to conjecture; but automata are, by profession, a puzzling race. If a certain disposition of strings, exposed to the rarefaction of the air, or to the morning and evening breezes, after the manner of our Æolian harps, produced these sounds; or if any method of arranging the internal apertures so as to receive them from a short distance, were the artifice, a considerable acquaintance with the science of music, and with accoustics generally, will be argued. Wilkins quotes a musical invention of Cornelius Drebel, of similar pretensions, which 'being set in the sunshine, would, of itself, render a soft and pleasant harmony, but being removed into the shade would presently become silent.'

The statues and the flight of Dædalus are equally famous, and, perhaps, fabulous. Aristotle, however, speaks of the former in his treatise De Anima, lib. i. c. 3. as successful imitations of the human figure and human functions in walking, running, &c. and attempts to account for their motions by the concealment of quicksilver.

Archytas' flying dove, originally mentioned in Favorinus, is another of the ancient automata. The inventor is said to have flourished about B. C. 400, and was a Pythagorean philosopher at Tarentum. It was made of wood, and the principal circumstance of its history, which Fa-

vorinus mentions, that is like some other birds of too much wing, when it alighted on the ground, it could not raise itself up again. Aulus Gellius, in his Noctes Atticæ, attempts to account for its flight, by observing, 'Ita erat scilicet libramentis suspensum, et aura spiritus inclusa atque occultâ consitum,' &c. that it was 'suspended by balancing, and moved by a secretly enclosed aura or spirit.'

Friar Bacon, we all know, made a brazen head that could speak, and that seems to have assisted, in no small degree, in proclaiming him a magician. Albertus Magnus is also said to have devoted thirty years of his life to the construction of an automaton, which the celebrated Thomas Aquinas broke purposely to pieces. Men, treated as these were by the age in which they lived, had no encouragement to hope that any details of their labors would reach posterity.

Amongst the curiosities of his day, Walchius mentions an iron spider of great ingenuity. In size it did not exceed the ordinary inhabitants of our houses, and could creep or climb with any of them, wanting none of their powers, except, of which nothing is said, the formation of its web. Various writers of credit, particularly Kircher, Porta, and bishop Wilkins, relate that the celebrated Regiomontanus (John Muller) of Nuremberg, ventured a loftier flight of art. He is said to have constructed a self-moved wooden eagle, which descended toward the emperor Maximilian, as he approached the gates of Nuremberg, saluted him, and hovered over his person as he entered the town. This philosopher, according to the same authorities, also produced an iron fly, which would start from his hand at table, and after flying round to each of the guests, returned, as if wearied, to the protection of his master.

An hydraulic clock, presented to the emperor Charlemagne, by the caliph Haroun al Raschid, merits record in the history of these inventions. It excited the admiration of all Europe at the period of its arrival. Twelve small doors divided the dial into the twelve hours, and opened successively as each hour arrived, when a ball fell from the aperture on a brazen bell and struck the time, the door remaining open. At the conclusion of every twelve hours, twelve mounted knights, handsomely caparisoned, came out simultaneously from the dial, rode round the plate, and closed the doors. Dr. Clarke, in his last volume of Travels (part iii. Scandinavia, sec. 1. 4to. 1819), mentions a similar contrivance in a clock at Lubeck, of the high antiquity of 1405. Over the face is an image of Jesus Christ, on either side of which are folding-doors, which fly open every day as the clock strikes twelve. A set of figures, representing the twelve apostles, then march forth on the left hand, and, bowing to our Saviour's image as they pass in succession, enter the door on the right. On the termination of the procession the doors close. This clock is also remarkably complete, for the age, in its astronomical apparatus; representing the place of the sun and moon in the ecliptic, the moon's age, &c. Similar appendages to clocks and time-pieces became too common, at the beginning of the last century, to deserve particular notice. We should not, however, omit some of the productions of the Le Droz family, of Neufchatel. About the middle of last century, the elder Le Droz presented a clock to the king of Spain, with a sheep and dog attached to it. The bleating of the former was admirably correct, as an imitation; and the dog was placed in custody of a basket of loose fruit. If any one removed the fruit, he would growl, snarl, gnash his teeth, and endeavour to bite, until it was restored.

The son of this artist was the original inventor of the musical boxes, which have of late been imported into this country. Mr. Collinson, a correspondent of Dr. Hutton's, thus clearly describes this fascinating toy in a letter to the doctor, inserted in his Mathematical and Philosophical Dictionary:—'When at Geneva, I called upon Droz, son of the original Droz, of La Chaux de Fond, where I also went. He showed me an oval gold snuff-box, about, if I recollect right, four inches and a-half long, by three inches broad, and about an inch and a-half thick. It was double, having an horizontal partition; so that it may be considered as one box placed on another, with a lid, of course, to each box. One contained snuff; in the other, as soon as the lid was opened, there rose up a very small bird, of green enamelled gold, sitting upon a gold stand. Immediately this minute curiosity wagged its tail, shook its wings, opened its bill of white enamelled gold, and poured forth, minute as it was (being only three-quarters of an inch from the beak to the extremity of the tail) such a clear and melodious song as would have filled a room of twenty or thirty feet square with its harmony.'

In Ozanam's Mathematical Recreations, we have an account, by the inventor, M. Camus, of an elegant amusement of Louis XIV. when a boy. It represented a lady proceeding to court, in a small chariot drawn by two horses, and attended by her coachman, footman, and page. When the machine was placed at the end of a table of proper size, the coachman smacked his whip, the horses started off with all the natural motions, and the whole equipage drove on to the farther extremity of the table; it would now turn at right angles in a regular way, and proceed to that part of the table opposite to which the prince sat, when the carriage stopped, the page alighted to open the door, and the lady came out with a petition, which she presented with a courtesy to the bowing young monarch. The return was equally in order. After appearing to await the pleasure of the prince for a short time, the lady courtesied again, and re-entered the chariot, the page mounted behind, the coachman flourished his whip, and the footman, after running a few steps, resumed his place.

About the same period, M. Vaucanson, a member of the Academy Royal of France, led the way to the unquestionable superiority of modern times, in these contrivances, by the construction of his automaton duck, a production, it is said, so exactly resembling the living animal, that not a bone of the body, and hardly a feather of the wings, seems to have escaped his imitation and direction. The radius, the cubitus, and the humerus had each their exact offices. The auto-

maton ate, drank, and quacked in perfect harmony with nature. It gobbled food brought before it, with avidity, drank, and even muddled the water after the manner of the living bird, and appeared to evacuate its food ultimately in a digested state. Ingenious contemporaries of the inventor, who solved all the rest of his contrivances, could never wholly comprehend the mechanism of this duck. A chemical solution of the food was contrived to imitate the effect of digestion.

This gentleman is also celebrated for having exhibited at Paris, in 1738, an androides (from ανηρ, a man, and ειδος, a form; a term under which some scientific works have classed all the automata that have been made to imitate the human person), a flute-player, whose powers exceeded all his ancestry; and for the liberality and good sense with which he communicated to the academy, in the same year, an exact account of its construction. The figure was nearly six feet in height, and usually placed on a square pedestal four feet and a-half high, and about three feet and a-half broad. The air entered the body by three separate pipes, into which it was conveyed by nine pairs of bellows, which were expanded and contracted at pleasure, by means of an axis formed of metallic substances, and which was turned by the aid of clock-work. There was not even the slightest noise heard during the operations of the bellows: which might otherwise have discovered the process by which the air was conveyed ad libitum into the body of the machine. The three tubes, into which the air was sent by means of the bellows, passed again into three small reservoirs concealed in the body of the automaton. After having united in this place, and ascended towards the throat, they formed the cavity of the mouth, which terminated in two small lips, adapted to the performance of their respective functions. A small movable tongue was enclosed within this cavity, which admitted or intercepted the passage of the air into the flute, according to the tune that was executed, or the quantity of wind that was requisite for the performance. A particular species of steel cylinder, which was turned by means of clock-work, afforded the proper movements to the fingers, lips, and tongue. This cylinder was divided into fifteen equal parts, which caused the ascension of the other extremities, by the aid of pegs, which pressed upon the ends of fifteen different levers. The fingers of the automaton were directed in their movements by seven of these levers, which had wires and chains attached to their ascending extremities; these being fixed to the fingers, caused their ascension in due proportion to the declension of the other extremity, by the motion of the cylinder; and thus, on the contrary, the ascent, or descent, of one end of the lever, produced a similar ascent, or descent, in the fingers that corresponded to the others; by which one of the holes was opened or stopped agreeably to the direction of the music. The entrance of the wind was managed by three of the other levers, which were so organized as to be capable of opening or shutting, by means of the three reservoirs. By a similar mechanical process, the lips were under the direction of four levers; one of which opened them in order to give the air a freer passage; the other contracted them; the third drew them back; and the fourth pushed them in a forward direction. The lips were placed on that part of the flute which receives the air; and, by the different motions which have been already enumerated, regulated the tune in the requisite manner for execution. The direction of the tongue furnished employment for the remaining lever, which it moved in order that it might be enabled to shut or open the mouth of the flute. The extremity of the axis of the cylinder was terminated on the right side by an endless screw, consisting of twelve threads, each of which was placed at the distance of a line and a half from the other. A piece of copper was fixed above this screw; and within it was a steel pivot, which was inserted between the threads of the screw, and obliged the cylinder above-mentioned, to pursue the threads. Thus, instead of moving in a direct turn, it was perpetually pushed to one side; the successive elevation of the levers displaying all the different movements of a professed musician.

M. Vaucanson constructed another celebrated androides, which played on the Provençal shepherd's pipe, and beat, at the same time, on an instrument called the tambour de basque. This was also a machine of the first order for ingenious and difficult contrivance. The shepherd bore the flageolet in his left hand, and in the right a stick, with which he beat the tabor, or tambourine, in accompaniment. He was capable of playing about twenty different airs, consisting of minuets, rigadoons, and country-dances. The pipe, or flageolet, which he was made to play, is a wind-instrument of great variety, rapidity, and power of execution, when the notes are well filled and properly articulated by the tongue; but it consists only of three holes; and the execution, therefore, mainly depends upon the manner in which they are covered, and the due variation of the force of the wind that reaches them. To give the androides power to sound the highest note, M. Vaucanson found it necessary to load the bellows, which supplied the air to this tone, with fifty-six pounds weight, while that of one ounce supplied the lowest tone. Nor was the same note always to be executed by exactly the same force of air; it was necessary to pay the most accurate attention to its place on the scale, and to so many difficult circumstances of combination and expression, that the inventor declares himself to have been frequently on the point of relinquishing his attempt in its progress. In the tambourine accompaniment, too, there were numerous obstacles to overcome; the variation of the strokes, and particularly the continued roll of this instrument, was found to require no small ingenuity of construction.

All other exhibitions of mechanical skill, in imitation of the powers of human nature, were destined, however, to give way, in 1769, to the pretensions of the chess-player of M. Wolffgang de Kempelin, a Hungarian gentleman, and aulic counsellor of the royal chamber of the domains of the emperor in Hungary. Called in that year

to Vienna, by the duties of his station, this gentleman was present at some experiments in magnetism, made before the empress Maria Theresa, when he ventured to hint that he could construct for her majesty a piece of mechanism far superior to any of those which had been exhibited. His manner of remarking this, excited the attention of the empress, who encouraged him to make the effort, the automaton chess-player, which has since been exhibited in all the capitals of Europe, was, within six months after this period, presented at the imperial court. It is a presumption in favor of the pretensions of this contrivance to be a master-piece of mere mechanism, that the original artist, after having gratified his exalted patroness and her court with the exhibition of it, appeared for many years indifferent to its fame. He engaged himself in other mechanical pursuits with equal ardor, and is said to have so far neglected this, as to have taken it partly to pieces, for the purpose of making other experiments. But the visit of the Russian grand duke Paul to the court of Joseph II. again called our automaton to life. It was repaired and put in order in a few weeks; and, from this period (1785), has been exhibited at intervals, through Germany, at Paris, and in London, first by M. de Kempelin, and latterly by a purchaser of the property from his son; De Kempelin having died in 1803.

Our chess-playing readers will be able to appreciate the bold pretensions of this automaton. The entire number of combinations which it is possible to form with the pieces of a chess-board has never, we believe, been ascertained. To push forward a plan of our own steadily, and at the same time to anticipate the designs of an antagonist, requires a constant and acute discrimination, which long experience, and some considerable strength of memory, have been required to make availing in all other cases. But this cunning infidel (for he assumes the figure of a Turk) drives kings, and castles, and knights before him with more than mortal sagacity, and with his inferior hand: he never, we believe, has been beaten; and except in a very few instances of drawn games, has beat the most skilful chess-players in Europe. Dr. Hutton, on the supposition of its being altogether a mechanical contrivance, calls it 'the greatest master-piece of mechanics that ever appeared in the world.' We shall recount his pretensions in the words of an Oxford graduate, who published Observations on them, during his last visit in London, and subjoin a statement of the best attempts that have been made to account for his apparent skill.

'The room where the automaton chess-player is at present exhibited, has an inner apartment, within which appears the figure of a Turk as large as life, dressed after the Turkish fashion, sitting behind a chest of three feet and a half in length, two feet in breadth, and two feet and a half in height, to which it is attached by the wooden seat on which it sits. The chest is placed upon four castors, and, together with the figure, may be easily moved to any part of the room. On the plain surface formed by the top of the chest, in the centre, is a raised immovable chess-board of handsome dimensions, upon which the figure has its eyes fixed; its right arm and hand being extended on the chest, and its left arm somewhat raised, as if in the attitude of holding a Turkish pipe, which originally was placed in its hand. The exhibiter begins by wheeling the chest to the entrance of the apartment within which it stands, and in face of the spectators. He then opens certain doors contrived in the chest, two in front and two at the back; at the same time pulling out a long shallow drawer at the bottom of the chest, made to contain the chess-men, a cushion for the arm of the figure to rest upon, and some counters. Two lesser doors, and a green cloth screen, contrived in the body of the figure and its lower parts, are likewise opened, and the Turkish robe which covers them is raised; so that the construction, both of the figure and chest, internally, is displayed. In this state the automaton is moved round for the examination of the spectators: and, to banish all suspicion from the most sceptical mind, that any living subject is concealed within any part of it, the exhibitor introduces a lighted candle into the body of the chest and figure, by which the interior of the chest is, in a great measure, rendered transparent, and the most secret corner is shown. Here it may be observed, that the same precaution to remove suspicion is used, if requested, at the close, as at the commencement, of a game of chess with the automaton. The chest is divided, by a partition, into two unequal chambers. That to the right of the figure is the narrowest, and occupies scarcely one-third of the body of the chest. It is filled with little wheels, levers, cylinders, and other machinery used in clock-work. That to the left contains a few wheels, some small barrels with springs, and two quarters of a circle placed horizontally. The body and lower parts of the figure contain certain tubes, which seem to be conductors to the machinery. After a sufficient time, during which each spectator may satisfy his scruples and his curiosity, the exhibiter recloses the doors of the chest and figure, and the drawer at the bottom; makes some arrangements in the body of the figure, winds up the works with a key inserted into a small opening on the side of the chest, places a cushion under the left arm of the figure, which now rests upon it, and invites any individual present to play a game of chess. At the commencement of a game, the automaton moves its head as if taking a view of the board; the same motion occurs at the close of a game. In making a move, it slowly raises its left arm from the cushion placed under it, and directs it towards the square of the piece to be moved. Its hands and fingers open on touching the piece, which it takes up, and conveys to any proposed square. The arm then returns with a natural motion to the cushion upon which it usually rests. In taking a piece, the automaton makes the same motions of the arm and hand to lay hold of the piece, which it conveys from the board, and then returning to its own piece, it takes it up, and places it on the vacant square. *Observations, &c. by an Oxford Graduate*, 8vo, 1819. His motions have an air of great dignity and composure. On giving check to the king, he moves his head as a signal. When a false move is made, as if to puzzle him, he taps with his right hand on the chest, replaces the

piece wrongly moved, and proceeds to take the due advantage of moving a piece of his own. At other times he will tap on the chest for his adversary to move; and at the close of the game he bows gracefully round to the company. It is a remarkable, and somewhat suspicious circumstance, that neither the present proprietor of this automaton (in a pamphlet circulated by him on this subject), nor the Oxford graduate, from whose observations we have abridged the above account of his performances, takes any notice of the attempted solution of them by Mr. Collinson, a correspondent of Dr. Hutton, to whom we have before alluded. In the same letter in which this gentleman describes the automaton inventions of the Droz family, he speaks of a pamphlet presented to him at Dresden, which affirms the whole phenomena to be produced by human agency; a conjecture which is confirmed by a writer in the Edinburgh Encyclopædia. A well-taught boy is said to be partly concealed in the ample drapery of our automaton's lower limbs, and partly in the commode on which the chess-board is placed. He cannot be seen when the doors are opened, we are told, 'because his legs and thighs are then concealed in two hollow cylinders, which appear designed to support the wheels and levers, the rest of the body being at that moment out of the commode, and hid in the drapery of the automaton. When the doors of the commode are shut, the clacks which are heard by the turning of a rounce, permit the dwarf to change his place, and re-enter the commode without being heard; and while the machine is rolled about to different parts of the room, to prove that it is perfectly detached, the dwarf has an opportunity of shutting the trap through which he has passed. The drapery of the automaton is then lifted up, and the interior part of the body is shown, to convince the spectators that all is fair, and the whole terminates to their great astonishment, and in the illusion that an effect is produced by simple machinery, which can only arise from a well-ordered head.' This writer proceeds to conjecture, that the chess-board is semi-transparent, so as at once to conceal the party within, and afford him sufficient light to perceive the moves of his antagonist, which are met by an interior lever, governing the arm of the automaton, on the principles of the pantograph.

With these accounts of the chess-player very distinctly in his mind, and an extract of the supposed method of concealing the dwarf or boy, in his pocket, the writer of this paper went with some friends a short time ago, to visit, and, if possible, to play at chess with the automaton. His engagements, however, were far too numerous for the writer to obtain that honor on this occasion. Some slight changes had taken place in the manner of exhibiting the automaton (compared with the account of the Oxford graduate); having, therefore, avowed to the proprietor, that his object was to obtain a scientific knowledge of his proceedings, as far as it could be done with propriety, the writer took memoranda of what passed.

From a door in a canvass screen the automaton and commode were wheeled out at the time appointed, and the figure was made to face the company. Then the inferior chamber of the commode (occupying about one-third of its dimensions), was opened before and behind, when a taper was held by the proprietor in such a situation, as to throw a full light through the machinery that occupied this part of it. He now closed and locked the doors of this chamber, opened the drawer, and took out the men and cushion, as described by the Oxford graduate; after which he opened the larger chamber of the commode in front, and put the taper through the front door within it. Perhaps one-sixth, or one-eighth of this chamber was occupied by machinery; the rest was a perfect cavity, lined with green baize. He now shut and locked these doors; then wheeled the commode round, opened and took up the drapery of the figure, and exhibited the body, partly occupied by machinery, and partly left with imperfect imitations of the prominent parts, to the shoulders. The drapery was then carefully pulled down, and the figure wheeled round, so as again to front the spectators, before whom it played a masterly and successful game. The conviction of the writer and his friends (with the figure before them) was, that the concealment of a small thin boy or dwarf was barely possible. The larger chamber would contain him, and that chamber never was opened from behind, nor at the same time that the back of the figure was exposed; while it is observable that the inferior chamber had the light of a taper thrown through it. So that it appeared a practicable contrivance that a boy should be concealed in the drapery while the commode was opened, and in the commode while the figure was exposed.

Under these impressions, the writer addressed a letter to the proprietor, in which he stated, that having with his friends, been highly gratified by the wonderful powers of the automaton chess-player, and intending to communicate the result of his investigation to the public, which must, if satisfactory, prove extremely creditable to the invention,—he requested leave to visit the exhibition (accompanied by two or three scientific friends, and probably in the presence of a member of the Royal family), in order to see a game played by the figure, with the doors of the commode open; his object being merely to ascertain the impossibility of any human intervention, and not in any degree to inspect the machinery; but to this application a polite negative was returned, declining any other than the ordinary public exposure of the machine.

Since writing the above, we have seen 'An Attempt to analyse the Automaton Chess-player of M. De Kempelin,' Lon. 1821. The anonymous author is sanguine enough to add, 'With an easy method of imitating the movements of that celebrated Figure.' The solution of these movements here offered to the public, is so far similar to our own, as that the writer confidently ascribes them to the concealed presence of a living agent. Five lithographic plates illustrates his supposed mode of operation. But this tract suggests, that the operator is introduced into the body of the automaton; that he sees the chess board, while playing, 'through the waistcoat, as easily as through a

veil;' and that his left hand actually fills the sleeve of the figure, moving the fingers 'with a string.' (Surely, to make this sort of agency complete, the chess-player might have been furnished with gloves!)

The author ingeniously finds a space at the back of the drawer, not heretofore noticed, which would receive the legs of a concealed person. He also makes some pertinent remarks on the illusion which is probably practised on the spectator in the winding up of the machinery, the ticking of clock-work that is heard, &c. We still imagine, however, that the dimensions of the chest would afford no room for the concealment of a figure that could thus direct the arm, and are certain no such figure could rise out of it into that part of the body supposed, as we saw it displayed in London. A youth coiled up in the commode would much more 'easily' play the game. The whole chest is but two feet and a half high, three feet long, and two feet in breadth. On the whole, we must leave the question of human agency still undecided, and pass on to the mention of another of M. de Kempelin's ingenious inventions.

'On what do you think M. de Kempelin is at present employed?' says M. de Wendisch, in a letter to a friend on the pursuits of that gentleman, in 1783—'on a machine that talks!' Acknowledge that he must be gifted with a creative genius bold and invincible, to undertake a project of this kind; and will it be believed that he has every reason to hope for complete success? He has already succeeded so far as to prove the possibility of such a machine, and to deserve on the part of the learned, that they should dedicate their attention to this new and hitherto unknown invention. His machine answers, clearly and distinctly enough, several questions. The voice is sweet and agreeable; there is but the letter R which it pronounces lispingly, and with a certain harshness. When its answer is not understood, it repeats it slower; and if required to speak a third time, it repeats it again, but in a tone of impatience and vexation. I have heard it pronounce in different languages, very well and very distinctly, the following words and phrases:—'Papa,' 'Mama,' 'My wife,' 'My husband,' 'A-propos,' 'Marianne,' 'Rome,' 'Madam,' 'The queen,' 'The king,' 'At Paris,' 'Come,' 'Mama loves me,' 'My wife is my friend.'' This writer then speaks of the machine being at that time nothing more than a square box, to which was affixed a pair of organ-bellows; and that, at each answer of this non-descript speaker, the inventor put his hand under a curtain that covered it, to touch, apparently, the springs that produced the articulation. It appears to have been M. Kempelin's design to give to this automaton the form of a child of five or six years of age, as the voice which he produced was that of this period of life. He, however, exhibited it in an unfinished state; and we have not been able to learn to what figure it was finally adapted. The narrative of his proceedings in accomplishing what he did effect, and which we abridge from a curious treatise of his, 'On the Mechanism of Speech,' appears to us to be amongst the most interesting and useful of all the automatical details. Our modern removers of impediments in speech may work wonders, perhaps, by looking into his artificial jaws!

The first object of M. Kempelin, though upon what ground he reasoned we cannot imagine, was the production of the vowel sounds, rather than those of any of the consonant, which he hardly expected to be able to combine with them. He investigated the affinity between the sound of various instruments and the human voice; and between the use of the artificial reed-stop, or voce humana (which has sometimes been applied to the natural organs), and the general functions of the glottis. To the honor of our northern countrymen, after exhausting his patience on qualifying and combining bassoon, with clarionet reeds, those of hautboys, &c. he found the reed of the Highland bagpipe to furnish the best practical basis of his attempts, and sounds approximating the nearest to the harmony divine of human speech! He now conceived that the fundamental powers of the voice were in A, the sound of which vowel he easily produced by combining the reed with a tube and a pair of organ-bellows; but beyond this he could not proceed, until it occurred to him that the organ of developing the sounds desired, demanded his principal attention. He divided, therefore, a deep elliptical box into two parts, which shut upon each other with a hinge, in the manner of the human jaws, connecting his tube with the back of it, and carefully varying their opening and manner of action, until he could command the sounds of O OU, and E. Year after year was devoted to this instrument, we are told; but I, or the German U, refused to obey his call. K, L, M, and P, however, rewarded his efforts; when he attempted to form the letters he had obtained, into syllabic combinations and words. Here an almost insuperable difficulty occurred; the sounds of the letters would not flow into each other without a clatter or pause. If too slowly enunciated, they would seem like a child repeating his alphabet, and have no resemblance to the word intended; and if the tube was too rapidly supplied, it would produce a catching gust of air in the mouth, which interrupted every letter with the sound of K. An aspirating sound following that of the consonants, was also very troublesome to overcome. In the beginning of the third year of his labor, he could execute, pretty accurately the words Papa, Mama, Aura, Lama, Mulo. The sounds of most of the other consonants were ultimately obtained. P, K, and T, required the greatest quantity of air, we are told; and the whole machine about six times the quantity of the human lungs. But the two latter consonants, with D and G, were always imperfectly articulated. Some of his best sentences were, Romanorum Imperator semper Augustus. Leopoldus Secundus. Vous êtes mon ami. Je vous aime de tout mon cœur. M. de Kempelin finally perfected, 1. Nostrils, which he found of great importance in articulation, and which consisted of two tin tubes, communicating at bottom with the mouth. 2. The mouth, made of elastic gum, and of a bell form, so contrived that the sounds of the reed issued immediately from it,

and connected with the air-chest by a tin tube, which kept it always full of air. 3. The air-chest, which was of an oblong shape, and received at one end the voice-pipe containing the reed, and at the other the bellows-pipe, both closed round with leather. In this chest were contained two inferior ones, each having a valve at the top closed by a spring, and a round aperture adapted to receive through the side of the larger chest a tin funnel, and a round wooden tube, which produced the hissing sounds of C H, J, S, and Z. The voice-pipe entered the larger chest between the two smaller ones. 4. The bellows, answering the purpose of lungs, and which acted in the ordinary manner of those belonging to an organ. 5. The reed, which was in imitation of a bagpipe drone, the hollow portion being square, and the tongue of it formed of thin ivory, vibrating horizontally, to produce the various sounds. The square end was inserted, as we have noticed, in the air-chest. Along the upper side of the tongue was a movable spring, which slightly bent it inward; and the part on which it fell was covered with leather, to modulate the vibrations. The sounds were more acute as the spring acted toward the outer extremity of the tongue, which was then more rapid in its motions; as it was withdrawn from this part, the vibrations were slower, and the sounds more grave.

The name of M. Maillardet, a Swiss artist, of modern celebrity, is the only one that merits association with that of De Kempelin. He has executed two or three celebrated figures. One of these is a lady at her piano-forte. She executes eighteen tunes by the actual pressure of her fingers on the keys; and while all the natural notes are thus performed, her feet play the flats and sharps by means of pedals. The instrument, in fact, may be correctly called an organ, as it is mainly moved by bellows; to bring which into proper action is the one important object of the machinery. The whole is impelled by six strong springs, acting on twenty-five communicating levers, and regulated and equalised by a brass fly. The interior of the instrument is, of course, very complicated and minute in its mechanism, which requires to be wound up once an hour. Before commencing a tune, the lady bows her head to the auditors; she is apparently agitated with an anxiety and diffidence, not always felt in real life; her eyes then seem intent on the notes, her bosom heaves, and at a distance it is impossible to discover any semblance of a work of art.

A magician, that has sometimes accompanied this musical lady, is also a considerable triumph of mechanical skill. He sits at the bottom of a wall, with a long wand in his right hand, and a book in his left. Questions inscribed on thin oval counters, twenty in number, are put into the spectator's hand, who is desired to enclose one or more of them in a drawer, which shuts with a spring. A medallion, for instance, has the question, What is the most universal passion? which being put into the drawer, the figure rises with a solemn gait, bows his head, draws a circle or two with his wand, consults his book, and lifts it towards his face, as if in meditation. He then strikes with his wand on the wall above his hand, when two folding-doors open, and discover the inscription Love, as the reply. The counters are remarkably thin, and similar in all other respects but their inscriptions, which some of them bear on both sides: certainly the mechanism that can discriminate the one from the other, must be exquisite; and mechanism alone, we have the highest authority for believing it is.

M. Maillardet's Writing-boy is hardly less meritorious. He is exhibited kneeling on one knee, and an attendant having dipped his pencil and laid the paper before him, he executes drawings, and French and English sentences, in writing, of a very superior description. Every natural motion of the fingers, elbow, eyes, &c. is correctly imitated. The first of these figures the artist stated to have cost him the sum of £1500 in its construction.

The last machine of this kind which we shall notice is the engine invented by Mr. Babbage, capable of computing any table by the method of differences, whether they are positive or negative, or of both kinds. The greater the number of differences, the more will this engine outstrip the most rapid calculator; and by the application of certain parts of no great complexity, the roots of equations, and consequently the roots of numbers may be extracted.

One machine of this kind this gentleman has executed. Drawings and plans of a second have been made by him to multiply any number of figures by any other number; of a third, to make tables of prime numbers from 0 to ten millions; and of a fourth, to construct tables which have no order of differences constant. This last engine will calculate tables governed by laws which have not been hitherto shown to be explicitly determinable; and will solve equations, for which analytical methods of solution have not yet been contrived. Thus one of the greatest difficulties with which calculators are beset, arising from the errors of copyists, and of the press, is obviated. In Mr. Babbage's engine, the machine itself takes from several boxes, containing types, the numbers which it calculates: thus becoming at the same time computer and compositor; and preventing all error both in copying and in printing. It is worked by the hand, and it would be very easy, if any advantage were to be gained by such a method, to apply to it a self-moving power.

We have now placed before the reader as complete an account of the most celebrated automata as the limits of our publication will admit. We believe no remarkable contrivance of this kind has escaped our notice; and is it too much to ask him for one serious reflection, at the close, upon the wisdom of that Almighty Architect, by whom we are so fearfully, so wonderfully, so inimitably made? Without any speculation on the possible powers of man, or the tendency of his habits and impulses on a large and hypothetical scale, let the entire muscular action of a single youthful arm, in striking a shuttlecock, be perfectly imitated by him, and we could consent to resign to the artist the government of our share of the world!

AUTOMENES, one of the Heraclidæ, king of Corinth. At his death, A. A. C. 779 annual ma-

gistrates were chosen at Corinth, who were called Prytanes; and by them the Corinthians were governed for ninety years, till Cypselus and his son Periander assumed absolute power.

AUTOMEDON, in entomology, a species of papilio.

AUTOMOLI, a nation of Ethiopia, mentioned by Herodotus.

AUTOMOLITE, in mineralogy, a substance which, from its crystalline form, was considered to be a variety of spinelle, containing a portion of oxide of zinc. But a later and more accurate analysis has shown it to be an aluminate of zinc. It has hitherto been found only in Sweden, in small octahedral crystals, imbedded in talc.

AUTONINE (Bernard), a French lawyer, was advocate to the parliament of Bourdeaux. He was author of, 1. A Comparison of the French and Roman Law; 2. A Commentary on the Provincial Law of Bourdeaux; 3. Censura Gallica in Jus Civile Romanum.

AUTONOE, in fabulous history, a daughter of Cadmus, who married Aristeus, by whom she had Actæon, frequently called Autoneius Heros. Actæon became a famous huntsman, but happening to look at Diana and her attendants bathing near Gargaphia, he was changed into a stag, and devoured by dogs; which was so afflicting to Autonoe, that she retired from Bœotia to Megara, and soon after died.

AUTONOMIA; from *αυτος*, and *νομος*, law; a power of being governed by our own laws and magistrates. The liberty of the cities which lived under the faith and protection of the Romans, consisted in their autonomia, i. e. they were allowed to make their own laws, and elect their own magistrates; by whom justice was to be administered, and not by Roman presidents or judges, as was done in other places, which were not indulged with the autonomia.

AUTOPHOROS; from *αυτος* and *φερω*, to bear, i. e. self-bearing; an epithet applied to a thief taken in the act with the stolen goods upon him.

AUTOPHOSPHORUS is, by some, used to denote phosphorus, on account of its kindling of itself.

AUTOPRACTI; from *αυτος*, and *πραττω*, I exact; in the civil law, persons indulged with this privilege, that they should not be compelled to pay taxes, but should be left to their own free will. Of this number were men of distinguished dignity, and those eminent for their probity and honor.

AUTOPSY. From *αυτος* and *οψις*, a man's own right, as distinct from that of others. Not in use.

In those that have forked tails, *autopsy* convinceth us, that it hath this use. *Ray on the Creation.*

AUTOPYRITES, Autopyros; from *αυτος*, and *πυρος*, wheat; in the ancient diet a species of bread, wherein the whole substance of the wheat was retained, without retrenching any part of the bran. Galen describes it otherwise, viz. as bread where only the coarser bran was taken out. And thus it was a medium between the finest bread, called similagineus, and the coarsest called furfuraceus. This was also called the mistus.

AUTOTHEISM, the doctrine of God's self-existence.

AUTOUR, in natural history, a sort of bark which resembles cinnamon, but is paler and thicker; it is the color of a broken nutmeg, and full of spangles. It comes from the Levant, and is an ingredient in the carmine dye. Also, in ornithology, the name under which Buffon describes the goshawk, or falco palumbarius of Linnæus.

AUTREAU (James d'), a French poet and painter, who died in great poverty, in the hospital of incurables in Paris, in 1745. His dramatic works were published in 4 vols. 12mo. 1749. He had little merit as a painter.

AUTRICUM, in ancient geography, 1. the capital of the Carnutæ, in Gallia Celtica; afterwards called Carnotena, Carnotenas, and Civitas Carnotenum; now Chartres; and, 2. the ancient name of Auxerre.

AUTUMN, Autum'nal, Autum'nity. } Perhaps from *augeo*, *auctum*, from the augmented fruits of nature.

For I will board her though she chide as loud
As thunder, when the clouds in *autumn* crack.
Shakspeare.

Thy grandsire's words savour'd of thriftie leekes,
Or manly garlicke: but thy furnace reekes
Hote steams of wine; and can aloofe descrie,
The drunken draughts of sweete *autumnitie*.
Bp. Hall's Satires, book iii.

Thou shalt not long
Rule in the clouds; like an *autumnal* star,
Or lightning, thou shalt fall. *Milton.*

No spring or summer's beauty hath such grace,
As I have seen in one *autumnal* face. *Donne.*

Bind now up your *autumnal* flowers, to prevent sudden gusts, which will prostrate all. *Evelyn.*

Not the fair fruit that on yon branches glows
With that ripe red th' *autumnal* sun bestows. *Pope.*

When men once reach their *autumn*, fickle joys
Fall off apace, as yellow leaves from trees;
Till left quite naked of their happiness,
In the chill blasts of winter they expire. *Young.*

Autumn, nodding o'er the yellow plain,
Comes jovial on. *Thomson.*

I would not be over-confident, till he hath passed a spring or *autumn*. *Wiseman's Surgery.*

The starving brood,
Void of sufficient sustenance, will yield
A slender *autumn*. *Philips.*

The evening is an emblem of *autumn*, and autumn of declining life. *Idler.*

Autumn begins when the sun enters Libra. When it ends, winter begins. Several nations have computed their years by autumns; the Anglo-Saxons by winters. Tacitus tells us the Germans were acquainted with all the other seasons of the year, but had no notion of autumn. The ancient Jews began their civil year in autumn; reckoning that all the fruits of the earth were in perfection at the creation. The French, without regarding the principle, adopted the practice in their late revolutionary calendar; of which, the first month, Vendemiare, commenced with the equinox. Thus faith and modern philosophy, in one instance, produced the same effect. Autumn has been reputed an unhealthy season. Tertullian calls it 'tentator valetudinum;' and the satirist speaks of it in the same light:

'Autumnus Libitinæ quæstus acerbæ.'

Autumn is commonly represented by painters under the figure of a female crowned with vine branches, and bunches of grapes; naked in that part which respects summer, and clothed in that which corresponds to winter. Its garment is covered with flowers, like that of Bacchus.

AUTUMN, in alchemy, the season when the operation of the philosopher's stone is brought to perfection.

AUTUMNAL EQUINOX, the time when the sun enters the autumnal point.

AUTUMNAL POINT is that part of the equinox from which the sun begins to descend towards the south pole.

AUTUMNAL SIGNS, in astronomy, are the signs Libra, Scorpio, and Sagittarius, through which the sun passes during the autumn.

AUTUMNALIA, the fruits of the earth that ripen in autumn.

AUTUMNALIS, in ornithology, a species of psittacus, called also psittacus Americanus, and crick à tête bleue, by Buffon. It is the lesser green parrot of Edwards, and autumnal parrot of Latham. It is distinguished by being of a green color, with the front and spot on the quill-feathers scarlet; crown and primary quill-feathers, blue. Of this kind there are two varieties. Also a species of anas, or duck, that inhabits South America. And a species of fringilla, called by Latham the autumnal finch.

AUTUMNUS, in entomology, the name given by Ammiral to the moth, or phalæna, called by Gmelin P. FAGANA: which see.

AUTUN, an ancient city of France, in the department of the Saone and Loire, formerly the capital of the Autunois district, and now of an arrondissement, with nine cantons, and 67,000 inhabitants. Before the revolution the intendant of Burgundy resided here, and it was the see of a bishop, suffragan of Lyons. The Arroux washes its walls, whose ruins are so firm, and the stones so closely united, that they seem almost to be cut out of the solid rock. Among the antiquities of this city are the ruins of three ancient temples, one of which was dedicated to Janus, and another to Diana; two antique gates of considerable beauty, with a theatre and a pyramid; which last is probably a tomb. In the church of St. Martins is the tomb of the sanguinary Brunehault, who is said to have poisoned her son Childebert, and to have procured the death of ten kings; and who met her death by being tied to the tail of a wild mare, by order of her grandson, Clovis II. The present bishop ranks under the metropolitan of Besançon, and exercises jurisdiction over the departments of the Saone and Loire, and the Nievre. Autun consists of the upper town, the castle, and the lower town. It is tolerably well built, contained before the revolution nine parish churches, five abbeys, with five other religious houses, and about 8000 inhabitants. The natives manufacture delft wares, carpets, coverlets, blankets, and tapestry. The city lies at the foot of three great mountains, sixteen leagues south-west of Dijon, and forty-five south-east of Paris.

AUTUNOIS, a ci-devant district of France, in Burgundy, now comprehended in the department of Saone and Loire. See AUTUN.

AUTURA, or AUDURA, a river of Gallia Celtica, now called Eure. It falls into the Seine, on the south side.

AUVAIL, a town of Germany, in the circle of Westphalia.

AUVERGNE, a ci-devant province of France, about 100 miles in length, and seventy-five in breadth; the capital of which was Clermont. It was bounded on the north by the Bourbonnois; on the east by Forez and Velay; on the west by Limosin, Quercy and La Marche; and on the south by Rovergue and the Cevennes: and was divided into upper and lower; the latter, otherwise called Limagne, being one of the finest countries in the world. The mountains of Upper Auvergne though not fruitful, afford good pasture, which feeds great numbers of cattle, the chief riches of that country. It now forms the two departments of Cantal and Puy-de-Dome, except some small districts annexed to those of Creuse Allier, and the Upper Loire. Auvergne is conspicuous in the various revolutions experienced by France, and anciently maintained a pre-eminence among the independent states of Gaul. Its inhabitants boasted a singular trophy in the sword of Cæsar, which he lost before the walls of Gergovia. But they maintained a faithful alliance with the Romans after they became subject to them.

AUVERGNIE, a town of Switzerland, in the canton of Neufchatel, three miles south of that place.

AUVERS, a town of France, on the right bank of the Oise, in the department of the Seine and Oise, arrondissement of Pontoise. Also a town in the west of France, in the arrondissement of Le Mans, and department of the Sarthe.

AUVILLARS, or AUVILLARD, a town of France, in Lower Armagnac, Gascony, in the department of the Tarn and Garonne. It is the head of a canton, and contains manufactures of woollen stockings, and upwards of 2000 inhabitants. It stands on the Garonne, which here forms a small harbour. Five leagues south of Agen.

AUVERNAS, a very deep-colored heady wine, made of black raisins, so called at Orleans; but it is not fit to drink before it is above a year old; but if kept two or three years, it becomes excellent.

AUVIGNY (N. Castressd'), a French historian of the eighteenth century. He was both a writer and a soldier, and lost his life at the battle of Dettingen, in 1743, at the age of thirty-one. His writings are, 1. Memoirs of Madam Barneveldt, 2 vols. 12mo. 2. Histories of Rome and France abridged for young persons. 3. History of Paris, 4 vols. 12mo. 4. Lives of illustrious Frenchmen, 8 vols. 12mo.

AVULS'ED, } *Avello, avulsum*, I tear or
AVULS'ION. } pull away. Torn or pulled away.

> Spare not the little offsprings, if they grow
> Redundant; but the thronging clusters thin
> By kind *avulsion*. *Philips.*

> The pressure of any ambient fluid can be no intelligible cause of the cohesion of matter; though such a pressure may hinder the *avulsion* of two polished superficies one from another, in a line perpendicular to them. *Locke.*

Ye towering minds! ye sublimated souls!
Who scatter wealth, as though the radiant crop
Glitter'd on every bough; and every bough,
Like that the Trojan gather'd, once *avuls'd*
Were by a splendid successor applied
Instant, spontaneous! listen to my lays.
Shenstone's Economy.

AUX, in astronomy, see AUGES. Some use aux to denote the arch of the ecliptic, intercepted between the first point of Aries, and the point wherein the sun, or a planet, is at its greatest distance from the earth.

AUXENTIUS, bishop of Milan, in the fourth century. He was a native of Cappadocia, and of Arian principles. Constantius gave him the bishopric of Milan; and though excommunicated by a council held at Rome, in 368, he held his see to his death, in 374.

AUXENTIUS, another of the Arian party, who challenged St. Ambrose to a public disputation, which was wisely declined by that great prelate.

AUXERRE, an ancient town of France, the capital of the department of Yonne, formerly the capital of the Auxerrois, in Burgundy. The palace of the ci-devant bishop is one of the finest in France, and the churches are very beautiful. It is advantageously situated for trade with Paris, on a hill on the banks of the river Yonne, eleven leagues S. S. E. of Sens, and thirty-seven south-east of Paris. Its principal trade is in wood, and the excellent wares of the neighbourhood. Here is also a manufacture of woollen stuffs. Population about 12,000.

AUXERROIS, a ci-devant territory of France, in Burgundy, of which Auxerre was the capital. It now forms the greater part of the arrondissement of Auxerre, in the department of the Yonne.

AUXESIS, in mythology, a goddess worshipped by the inhabitants of Egina, and mentioned by Herodotus and Pausanias.

AUXILI'AR, AUXILI'ARY, *n.* & *adj.* AUXILI'ATORY. } Lat. *auxilium*, strength; one who gives or lends us additional strength. An aider, assister, or supporter.

The giant brood,
That fought at Thebes and Ilium on each side,
Mix'd with *auxiliar* gods. *Milton's Paradise Lost.*

Their tractates are little *auxiliary* unto ours, nor afford us any light to detenebrate this truth.
Brown's Vulgar Errours.

There is not the smallest capillary vein but it is present with, and *auxiliary* to it, according to its use.
Hale's Origin of Mankind.

Nor from his patrimonial heaven alone,
Is Jove content to pour his vengeance down,
Aid from his brother of the seas he craves
To help him with *auxiliary* waves. *Dryden. Ovid.*

They had both kept good company, rattled in chariots, glittered in play-houses, and danced at court, and were both expert in the games that were in their times called in as *auxiliaries* against the intrusion of thought. *Rambler.*

AUXILIARY VERB. A verb that helps to conjugate other verbs. In almost all languages, some of the commonest nouns and verbs have many irregularities; such are the common auxiliary verbs, *to be*, and *to have*, *to do*, and *to be done*, &c.

AUXILIARY VERBS, in grammar, are prefixed to other verbs, to form their moods and tenses. In the English language, the auxiliary verb *am* supplies the want of passive verbs. All the modern languages make use of auxiliary verbs, because their verbs do not change their terminations as those of the Latin and Greek, to denote the different tenses or times of being, doing, or suffering; nor the different moods or manners of their signifying: so that, to supply this defect, recourse is had to different auxiliary verbs.

AUXILIUM, in law. See AID.

AUXILIUM, AD FILIUM MILITEM FACIENDUM, vel filiam maritandam, was a writ directed to the sheriff of every county, where the king or other lord had any tenants, to levy them reasonable aid, towards the knighting of his eldest son, or the marriage of his eldest daughter.

AUXILIUM CURLÆ, signifies an order of court, for the summoning of one party at the suit of another.

AUXO, in mythology, the name of one of the two graces worshipped by the Athenians. See HEGEMONE.

AUXOIS, a small ci-devant territory of France, in Burgundy, of which Semur was the capital. It is now in the department of Cote d'Or.

AUXON, a town of France, in Champagne, department of the Aube, with 2340 inhabitants. 5½ leagues S. S. W. of Troyes. Also a town in Upper Auvergne, department of the Upper Loire, near the Allier, with 1500 inhabitants; and the title of barony. It carries on a traffic in corn, wine, and cloth. 12½ leagues north-west of Le Puy.

AUXONNE, the capital of a county of the same name in France, in the province of Burgundy, on the left bank of the Saone. It is regularly fortified, and contains manufactures of serge and other cloths.

AUXY, the French name of a species of wool, spun in the neighbourhood of Abbeville, by workmen, called houpiers. It is very fine and beautiful, and used to make the finest stockings.

AW, a river of Scotland, in Argyllshire. Also a town of Germany in the electorate of Bavaria

Aw, or LOCH-AW, a beautiful and extensive lake in Argyllshire, in the parish of Glenorchy The whimsical tradition respecting the origin of this lake is recorded by Ossian. The substance of it is, that 'to Bera the aged, was committed the charge of that awful spring, which was appointed by fate to destroy the inheritance and race of her fathers. This event, she was to prevent, or at least to protract, by covering the spring before sun-set, with a stone, on which the sacred and mysterious characters were engraved. One night this was forgot. The confined waters of the mountain burst forth, and sweeping all before them, covered that large expanse, now known by the name of the Lake of Aw.' Mr. Stewart, minister of Stachur, explains the fable by the etymology of Bera; Beir, in the Gaelic signifying a thunderbolt. This lake is about thirty miles long, but not above three quarters broad upon an average, though in some places

it measures two miles. It abounds with salmon, trout, eels, &c. The name is often spelt and generally pronounced Loch-ow.

AWA, a town of Persia, in the province of Irak, eighty miles south of Casbin.

Awa, a town of Japan, and capital of a province on the south coast of the island of Xicoco. Also a town of Japan, and capital of a province on the south coast of the island of Niphon, eighty-five miles south of Jeddo. Long. 140° 4′ E., lat. 34° 24′ N.—A town of Japan, in the island of Ximo, sixty-two miles north of Nangasaki.

AWAHAZARI, a town of Asiatic Turkey, in Caramania, fifteen miles N. N. W. of Alanieh.

AWAIT, *v.* & *n.* } Dutch, *waeken*; Ang.-
Await'er, *n.* } Sax. Wæccean, to wake or
Await'ing. } watch. To be watchful, vigilant; to keep upon the look out; to be in attendance, in expectation.

Even as the wretch condemn'd to lose his life,
Awaits the falling of the murdering knife. *Fairfax.*

And least mishap the most bliss alter may:
For thousand perils lie in close *await*,
About us daily, to work our decay. *Spenser.*

Advanc'd in view, they stand, a horrid front
Of dreadful length, and dazzling arms, in guise
Of warriors old with order'd spear and shield,
Awaiting what command their mighty chief
Had to impose. *Milton. Paradise Lost*, book i.

Nor less resolv'd, Antenor's valiant heir,
Confronts Achilles, and *awaits* the war. *Pope.*

Man's feeble race what ills *await!*
Labor and penury, the racks of pain,
Disease, and sorrow's weeping train,
And death, sad refuge from the storm of fate.
Collins.

The boast of heraldry, the pomp of power,
And all that beauty, all that wealth e'er gave,
Await alike the inevitable hour,
The paths of glory, lead but to the grave. *Gray.*

AWA'KE, *v.* & *adj.* } See Await. To rouse
Awa'ken, } from inaction of any
Awa'kener, } kind; from sleep; to
Awa'kening. } make alive.

K. Rich. I had forgot myself: am I not king?
Awake, thou coward majesty, thou sleepest;
Is not the king's name forty thousand names?
Shakspeare. King Richard II.

The cheerful lark, mounting from early bed,
With sweet salutes *awakes* the drowsy light,
The earth she left, and up to heaven is fled,
There chaunts her Maker's praises out of sight.
Fletcher.

Covetous men need neither clock nor bell to *awaken* them: their desires make them restless.
Hall's Contemplations.

'Tis night! the season when the happy take
Repose, and only wretches are *awake*;
Now discontented ghosts begin their rounds,
Haunt ruin'd buildings and unwholesome grounds.
Otway.

And see!
'Tis come! the glorious morn! the second birth
Of heaven and earth! *awakening* nature hears
The new creating world, and starts to life,
In every heightened form, from pain and death
For ever free. *Thomson.*

See Truth, Love, and Mercy, in triumph descending,
And nature all glowing in Eden's first bloom!
On the cold cheek of Death smiles and roses are blending,
And Beauty immortal *awakes* from the tomb.
Beattie's Hermit.

AWARD, *v.* & *n.* } According to Tooke
Awar'der. } from the French *à garde*- to keep; with a verb preceding, understood as to determine who is [to keep;] to adjudge.

A pound of that same merchant's flesh is thine;
The court *awards* it, and the law doth give it.
Shakspeare.

It advances that grand business, and according to which their eternity hereafter will be *awarded.*
Decay of Piety.

A church which allows salvation to none without it, and *awards* damnation to almost any within it.
South.

Satisfaction for every affront cannot be *awarded* by stated laws. *Collier on Duelling.*

Now hear th' *award*, and happy may it prove
To her, and him who best deserves her love.
Dryden.

Affection bribes the judgment, and we cannot expect an equitable *award*, where the judge is made a party. *Glanville.*

To urge the foe,
Prompted by blind revenge and wild despair,
Were to refuse th' *awards* of Providence.
Addison's Cato.

Th' unwise *award* to lodge it in the tow'rs,
An off'ring sacred. *Pope. Odyssey.*

Award, in law, is the arbitrator's final adjudication, of matters referred to him. References are sometime made spontaneously by the parties themselves, to avoid the expense and delay of legal proceedings; and sometimes by order of the court before which a cause is pending. In the former case, the parties enter into bonds to abide by the decision; in the latter an order or rule of the court is made, that the matter in issue shall be determined by the award. Law as well as facts are within the province of the arbitration. But if in the award (which is in writing and under seal) the arbitrator states the legal grounds on which he has decided, and those grounds appear to the court to be wrong, the award may be set aside. If he merely makes his order without assigning his reasons, the award must be abided by, though he may have been mistaken in point of law. And the courts will set aside an award, if the arbitrator can be shown to have made it from corrupt motives.

AWA'RE, *v.* & *n.* } Sax. waerd. Germ.
Awar'n. } *gewärht*, from *wahren*, to see. To be on the look out, to be cautious, to take care, to be provident.

So warn'd he them *aware* themselves; and
Instant, without disturb, they took alarm.
Paradise Lost.

Ere I was *aware*, I had left myself nothing but the name of a king. *Sidney.*

Ere sorrow was *aware*, they made his thoughts bear away something else besides his own sorrow.
Id. Arcadia.

Temptations of prosperity insinuate themselves; so that we are but little *aware* of them, and less able to withstand them. *Atterbury.*

The first steps in the breach of a man's integrity are more important than men are *aware* of. *Steele.*

AWASI, or AWADSI, an island of Japan, near the south coast of Niphon, about sixty miles in circumference. Long. 133° 44′ E., lat. 34° 30′ N. Also, a town of Japan, and capital of an island of the same name. Long. 133° 43′ E., lat. 34° 30′ N.

AWASIMA, a small island of Japan, seven miles east of Sado.

AWATCHA, in ornithology, a species of motacilla that inhabits Kamtschatka. It is of a brown color; the chin and breast white, spotted with black; middle of the belly and lores white; primary quill-feathers bordered with white; tail-feathers orange at the base. Art. Zool.—Gmelin.

AWATSKA BAY, a harbour of Kamtschatka; which is said to be the safest and most extensive yet discovered in that part of the world; and the only one that can admit vessels of large burden. The entrance to it is in long. 158° 48′ E., and lat. 52° 51′ N.

AWAY', AWAY'WARD. } Ang.-Sax. wagean, to wag or move; Ang.-Sax. weg, or waeg; Eng. way. Away is the imperative mood, or past participle.

A man's life is not to be trifled *away*: it is to be offered up and sacrificed to honourable services, public merits, good causes, and noble adventures.
Bacon's Essays.

I had my feather shot sheer *away*.
Beaum. & Fletch. Knight of the burning Pestle.

They could make
Love to your dress, although your face were *away*.
Ben Johnson's Catiline.

It is impossible to know properties that are so annexed to it, that any of them being *away*, that essence is not there. *Locke.*

So if by chance the eagle's noble offspring,
Ta'en in the nest, become's some peasant's prize,
Compell'd awhile to bear his cage and chains
And like a pris'ner with the clown remains
But when his plumes shoot forth and pinions swell
He quits the rustic and his homely cell;
Breaks from his bonds, and in the face of day
Full in the sun's bright beams he soars *away*:
Delights thro' heav'n's wide pathless ways to go,
Plays with Jove's shafts and grasps his dreadful bow.
Rowe's Royal Convert, act iv.

But ah! thou knows't not in what youthful play
Our nights beguil'd with pleasure swam *away*;
Gay songs and cheerful tales deceived the time,
And circling goblets made a tuneful chime;
Sweet was the draught, and sweet the blooming maid,
Who touch'd her lyre beneath the fragrant shade.
Sir W. Jones.

There seems a floating whisper on the hill,
But that is fancy, for the starlight dews,
All silently their tears of love instil,
Weeping themselves *away*, till they infuse
Deep into Nature's breast the spirit of her hues.
Lord Byron's Childe Harolde.

AWE', *v.* & *n.*
AWE'FUL,
AWE'FULLY,
AWE'FULNESS,
AWE'LESS,
AWE'FUL-EYED,
AWE-COMMANDING,
AWE-STRUCK.
} Goth. agyan, to fear, or dread. To cause fear, terror, or reverence.

His coward lips did from their colour fly,
And that same eye, whose bend does *awe* the world,
Did lose its lustre. *Shakspeare.*

Know, then, that some of us are gentlemen,
Such as the fury of ungovern'd youth
Thrust from the company of *awful* men. *Id.*

So *awful*, that with honour thou may'st love
Thy mate; who sees, when thou art seen least wise.
Milton. Par. Lost.

I approach thee thus, and gaze
Insatiate; I thus single; nor have fear'd
Thy *awful* brow, more *awful* thus retir'd,
Fairest resemblance of thy Maker fair. *Id.*

A parish priest was of the pilgrim train,
An *awful*, reverend, and religious man,
His eyes diffused a venerable grace,
And charity itself was in his face. *Dryden.*

Hail! rev'rend priest! To Phœbus' *awful* dome
A suppliant I, from great Atrides come,
Unransom'd here receive the spotless fair,
Accept the hecatomb the Greeks prepare. *Pope.*

In those deep solitudes, and *awful* cells,
Where heav'nly-pensive contemplation dwells,
And ever-musing melancholy reigns.
Id. Eloisa to Abelard.

In winter, *awful* thou! with clouds and storms
Around thee thrown, tempest o'er tempest roll'd
Majestic darkness! on the whirlwind's wing,
Riding sublime, thou bidst the world adore
And humblest nature with thy northern blast.
Thomson.

Serene, though *awful*, on her brow the light
Of heavenly wisdom shone; nor roved her eyes,
Save to the shadowy cliff's majestic height,
Or the blue concave of th' involving skies.
Beattie.

It were endless to enumerate all the passages, both in the sacred and profane writers, which establish the general sentiment of mankind concerning the inseparable union of a sacred and reverential *awe* with our ideas of the divinity. *Burke.*

Now, now my solitary way I bend
Where solemn groves in *awful* state impend.
Kirke White's Poems.

AWERI, or OVERO, a kingdom of Africa, dependent on Benin, with a town of the same name on the river Formosa.

AWE'ARY. On weary. See WEARY.

SAF. Go thy waies, I begin to be *aweary* of thee; and I tell thee so before; because I would not fall out with thee.
Shakspeare. All's Well that Ends Well.

AWHA'PED. From Ang.-Sax. wafian, to be amazed, or astonished, terrified, confounded.

Ah! my dear gossip, answer'd then the ape,
Deeply do your sad words my wits *awhape*,
Both for because your grief doth great appear,
And eke because myself am touched near.
Hubberd's Tale

AWHEELS. ON WHEELS.

And will they not cry then the world runs *awheels*
Ben Jonson's Masques, f. 18

AWHILE'. A time; Ang.-Sax. hwile (for hwiol, a turn), walk a while, take a turn. See WHILE.

Stay, stay, I say:
And if you love me, as you say you do,
Let me persuade you to forbear *awhile*.
Shakspeare

Into this wild abyss the wary fiend
Stood on the brink of hell, and look'd *awhile*,
Pond'ring his voyage. *Milton's Paradise Lost*

Here, lonely wandering, o'er the sylvan bower,
I come to pass the meditative hour;
To bid *awhile* the strife of passion cease,
And woo the calms of solitude and peace.
Kirke White's Poems.

But thou, with spirit frail and light,
Wilt shine *awhile* and pass away,
As glow-worms sparkle through the night,
But dare not stand the test of day.
Lord Byron.

AWHIT'. A whit, or o whit, Ang.-Sax. hwit. See WHIT.

These farre exceede the haggarde hauke
That stoppeth to no stale:
Nor forceth on the lure *awhit*,
But mounts with eu'ry gale?
Turberville. Epitaphes, &c.

AWK', AWK'LY, AWE'WARD, AWK'WARDLY, AWK'WARDNESS. Perhaps awk is a corruption of averricht. The termination, ward, is from keered, past participle of keeren, Ang.-Sax. cyrran, to turn. Deviating from the right path or line, indirect, clumsy, inelegant.

Proud Italy,
Whose manners still our tardy apish nation
Limps after in base *awkward* imitation.
Shakspeare.

Their own language is worthy their care; and they are judged of by their handsome or *awkward* way of expressing themselves in it. *Locke.*

An *awkward* shame, or fear of ill usage, has a share in this conduct. *Swift.*

Slow to resolve, but in performance quick;
So true, that he was *awkward* at a trick. *Dryden.*

It is an *awkward* thing for a man to print in defence of his own work against a chimæra: you know not who or what you fight against. *Pope.*

What's a fine person, or a beauteous face,
Unless deportment gives them decent grace?
Bless'd with all other requisites to please,
Some want the striking elegance of ease;
The curious eye their *awkward* movement tires;
They seem like puppets led about by wires.
Churchill.

AWK, in ornithology. See ALCA.

AWL'. Ger. ahl. A sharp pointed tool. In the chroniclers used for a weapon of war.

His *awle* and lingell in a thong,
His tar-boxe on his broad belt hong,
His breech of coyntrie blew.
Drayton.

Thou art a cobler, art thou?
Truly, sir, all that I live by is the *awle*.
Shakspeare. Julius Cæsar, fol. 109.

AWLS, among shoemakers, are usually a little flat and bended in the blade, and the point ground to an acute angle.

AWLAN, a small imperial town of Germany, in the circle of Suabia, seated on the river Kocher, fifteen miles west of Oeting and twelve north of Heidenheim.

AWME, or AUME, a Dutch measure of capacity for liquids, containing eight steckans, or twenty verges or verteels; answering to what in England is called a tierce, or one-sixth of a ton of France, or one-seventh of an English ton. Arbuthnot.

AWN, in botany. See ARISTA.

AWN of wine, 360 pounds.

AWNING. A cover spread over a boat or vessel, to keep off the weather.—Awnings are made of canvas. The length of the main-deck awning, says Mr. Clerke, is from the centre of the fore-mast to the centre of the main-mast; the width corresponds to the breadths of the ship, taken at the main-mast, fore-mast, and at the mid-way between. The length of the quarter-deck awning is from the centre of the main-mast to the centre of the mizen-mast; and the width answers to the breadths of the ship, at the main-mast, mizen-mast, and at the mid-way between. The length of the poop, or after-awning, is from the centre of the mizen-mast to the ensign-staff, about seven feet above the deck; and the width is formed agreeably to the breadths of the ship, taken at the mizen-mast, the taffarel, and at the mid-way between. The canvas is cut to the given breadths of the awning, allowing about nine inches to hang down on each side, which is sometimes scolloped and bound with green baize, and is sewed together with an inch-seam, and tabled all round with a two or three inch tabling. Half the diameter of the masts is cut out in the middle at each end, and lacing-holes are made across the ends to connect one awning to another. On the upper part, along the middle and sides, is sewed a one-inch and half or two-inch rope, to which the trucks are sewed at about three-quarters of a yard asunder. A thimble is spliced in each end of the rope. Sometimes curtains are made to hang to the sides of the awnings, of the same length as the awnings. Their depth is taken from the sides of the awning to the gun-wale, supposing the awning to be in its place. The seams and tablings are the same as those of the awnings, and lacing-holes are made along the upper tabling of the curtain, and the side tabling of the awning. Clerke's Elem. and Practice of Rigging, vol. i. p. 140. 230. In the long-boat they make an awning, by bringing the sail over the yard and stay, and booming it out with the boat-hook.

AWOR'K, AWORK'ING. In work. See WORK.

Long they thus trauail'd, yet neuer met
Adventure, which might them *awarking* set.
Spenser. Mother Hubberd's Tale.

He first suborns a villain, that embrac'd
The nobler name of March-born Mortimer,
Which, in the title of the house of York,
Might set the monstrous multitude *awork*.
Drayton. Miseries of Queen Margaret.

Who shoulde bee the makers of anye maner cloth, if there lacked men of substaunce to set sūdry sortes *a woorke*. *Sir Thomas More's Workes.*

AWRE'KE. Ang.-Sax. awrecan, to wreak. See WREAK.

Than dame Prudence, whan that she saw how that hire husbande shope him for to *awreke* him on his foes, and to beginne werre, she in ful humble wise, whan she saw hire time, sayde him these wordes.
Chaucer. The Tale of Melibeus.

AWRISH, a river in the county of Durham, which runs into the Tees at Eggleton.

AWRY'. Past participle awrythed, of the verb wrythan, to writhe. Writhed, crooked, bended, distorted, askance.

When I look back, and in myself behold
The wand'ring ways, that youth could not descry:
And see the fearful course that youth did hold,
And mete in mind each step I strayed *awry*.
Paradise of Dainty Devices, 1600.

Preventing fate directs the lance *awry*,
Which glancing only mark'd Achates' thigh.
Dryden.

AX', } Ask. Asking. See Ask. These
Ax'ynG. } words, which are now considered vulgarisms, are the original Saxon forms.

But Robin may not wete of this, thy knave,
Ne eke thy maiden Gille I may not save;
Axe not why; for though thou *axe* me,
I wol not tellen goddes privetee.
Chaucer. The Milleres Tale, v. i. p. 140.

Ax, a town of France, the head of a canton, in the department of the Arriege, arrondissement of Foix. Here are warm baths which are much frequented. It lies on the river Arriege. Five leagues north-west of Tarascon. Population 1500.

Ax, or Axe, a river of England, which rises in the county of Dorset, and entering Devonshire, passes by Axminster, and afterwards falls into the sea a little below Axmouth.

Ax, a river of England, which rises in Wokey-Hole, near Wells, in the county of Somerset, and after passing Axbridge, falls into the Bristol channel, about eight miles lower down

AX, Battle. See Axe.

AXAM, a district and town of Tyrol, in the lower valley of the Inn, to the south-west of Inspruck. Here a great deal of flax is cultivated.

AXAMENTA, in antiquity, the verses or songs of the salii, which they sung in honor of all men. The word is formed, according to some, from axare, to nominate. Others will have the carmina saliaria to have been denominated axamenta, on account of their having been written in axibus, or on wooden tables. The axamenta were not composed by the salii. The author of them was Numa Pompilius; and, as the style might not be altered, they grew in time so obscure, that the salii themselves did not understand them. Varro says they were 700 years old.

Axamenta, or Assamenta, in ancient music, hymns performed wholly with human voices.

AXARA, a town of Asiatic Turkey, in Natolia, situated in a fertile district of the same name, fifty or sixty miles from Guzel-Hissar.

AXATI, a town of ancient Bætica, in the Bœtis; now called Lora, a small city of Andalusia, in Spain, seated on the Guadalquiver.

AXAYACATL, a species of fly, common about the lakes of Mexico; the eggs of which, being deposited in immense quantities upon the rushes and corn-flags, form large masses, which are taken up by fishermen, and carried to market. This caviare, called ahuauhtli, which has much the same taste with the caviare of fish, used to be eaten by the Mexicans, and is now a common dish among the Spaniards. The Mexicans eat not only the eggs, but the flies themselves, made up together into a mass, and prepared with saltpetre.

AXBRIDGE, a market town of Somersetshire, anciently a borough, by prescription, sending members to parliament during the reigns of the first three Edwards, after which it was, at its own desire, excused. The corporation consists of a mayor, recorder, town-clerk, ten aldermen, and twenty-two burgesses, out of whom a sheriff, serjeant-at-mace, and constables are chosen. Knit hose is the only manufactory. The kings of England formerly had a hunting chase here Market on Saturday. It is twenty-three miles north-west of Somerton, and 131 west of London

AXE'. Gr. Αγω, αξω. An adze or addice See Addice.

My mangled body shows,
My blood, my want of strength, my sick heart shows
That I must yield my body to the earth,
And by my fall the conquest to my foe;
Thus yields the cedar to the *axe's* edge,
Whose arms give shelter to the princely eagle.
Shakspeare. Third Part of Henry VI. act v. sc. 3.

Loud sounds the *axe*, redoubling strokes on strokes,
On all sides round the forest hurls her oaks
Headlong. Deep echoing groan the thickets brown,
Then rustling, crackling, crashing, thunder down.
Pope's Homer's Iliad, xxiii. 144.

Like crowded forest trees we stand,
And some are mark'd to fall;
The *axe* will smite at God's command,
And soon will level all. *Cowper.*

Axe, a river in Somersetshire, which falls into the Severn below Uphill.

Axe, or Ax, differs from the hatchet, in that it is made larger and heavier, to hew large stuff; and its edge tapering into the middle of its blade. It is furnished with a long handle, being to be used with both hands.

AXEL, or Axil, a small fortified town of Dutch Flanders, in the kingdom of the Netherlands. It is seated among marshes, fourteen miles north of Ghent.

AXELODUNUM, the ancient name of Hexham, in Northumberland.

AXENUS, the ancient name of the Euxine Sea, the signification of which is, inhospitable; and is perfectly answerable to the disposition and manners of the ancient inhabitants of the east.

AXE-STONE, in mineralogy, a sub-species of jade, but not of so light a green, and somewhat of a slaty texture. The natives of New Zealand work it into hatchets. It is found in Corsica, Switzerland, Saxony, and on the banks of the river Amazons, whence it has been called Amazonian stone. Its constituents are silica 50·5, magnesia 31, alumina 10, oxide of iron 5·5, water 2·75, oxide of chromium 0·05.

AXEY, the principal town in the island of Axholm. It is thinly inhabited.

AXHOLM, a river island in the north-west part of Lincolnshire. It is formed by the rivers Trent, Idel, and Dun; and is about ten miles long, five broad, and twenty in compass. It has three villages, Crowle, Epworth, and Hyrst; besides Axey, the chief town. The lower part is marshy, but produces an odoriferous shrub, called gall; the middle is rich and fruitful, yielding flax in great abundance. It also produces an alabaster, which is used for making lime. In the eighteenth century the body of a woman, quite entire, and in a bent position, the head and feet almost in contact, was found in a morass, which, from the fashion of her sandals, was conjectured to have lain there from the time of Edward I. when there were two monasteries here.

AXIACE, an ancient town of Sarmatia Europea; now Oczacow.

AXIL. See Axel.

AXILLA, in anatomy, or Ala, the cavity under the upper-part of the arm; commonly called the arm-pit. It is a diminutive of axis, q. d. little axis. Abscesses in the axillæ are usually dangerous on account of the many blood-vessels, lymphatics, nerves, &c. thereabout, which form several large plexuses. By the ancient laws, criminals were to be hanged by the axillæ if they were under the age of puberty.

Axilla, in botany, is the space comprehended between the stems of plants and their leaves. Hence we say, those flowers grow in the axillæ of the leaves; i. e. at the base of the leaves, or just within the angles of their pedicles.

AXILLARY Artery is that part of the subclavian branch of the ascending trunk of the aorta, which passes under the arm-pits.

Axillary Glands are situated under the arm-pits, enveloped in fat, and lie close by the axillary vessels.

Axillary Nerve, called also the auricular nerve, arises from the last two cervical pairs; runs into the hollow of the axilla, behind the head of the os humeri, between the musculus teres major and minor, &c.

Axillary Vein, is one of the subclavian veins; which, passing under the arm-pits, divides itself into several branches; superior, inferior, external, internal, &c. which are spread over the arm.

Axillary Vertebra, the second vertebra of the back, so called because it is nearest to the arm-pits.

AXIM, a district of Africa, part of the fertile territory of Ahanta, on the Gold Coast. It is directly east of Apollonia, from which it is separated by the river Ancobra. The Dutch have a fort in Axim called Fort Anthony, situated on the most western promontory of Cape Three Points. It is compact, well situated for landing, and in a commanding position. Ten leagues east of Apollonia.

The climate is so excessively moist, that it is proverbially said to rain eleven months and twenty-nine days of the year. This excessive moisture renders it very unhealthy; but it produces great quantities of rice, water-melons, lemons, oranges, &c. Here are also produced vast numbers of black cattle, goats, sheep, pigeons, &c. The whole country is filled with beautiful and populous villages, and the intermediate lands are well cultivated. The natives all go naked, but are very healthy; and there is a constant traffic carried on with them by the Europeans for their gold. This canton is a kind of republic, the government being divided between the Caboceroes or chief men, and Manaceroes or young men. But in their courts, whoever makes the most valuable present to the judges is sure to gain his cause. The Portuguese founded the first settlement here, but were driven from it by the Dutch in 1642.

Axim, a river in the above canton, which runs through the town of Axim.

Axim, or Auchombone, the capital of Axim, stands under the cannon of the Dutch fort St. Antonio. It is secured behind by a thick wood that covers the whole declivity of a neighbouring hill. Between the town and the sea runs an even and spacious shore of beautiful white sand. All the houses are separated by groves of cocoa, and other fruit-trees, planted in parallel lines, each of an equal width, and forming an elegant vista. The coast is defended by a number of small pointed rocks, which project from the shore, and render all access to it dangerous.

AXINAE'E, Axinæ, in natural history, a genus of the Mollusca tribe (Testacea,) established by Poli, in his history of the shells of the two Sicilies. The character is taken from the form of the animal; the shell belongs to the Arca genus of the Linnæan arrangement.

AXINITE, in mineralogy, a crystallised substance, found principally in Dauphiny, in France, and latterly in the neighbourhood of St. Just, Cornwall. The colors are a light violet brown. The crystals resemble an axe in the form and sharpness of their edges; being flat rhomboidal parallelopipeds, with two of the opposite edges wanting, and a small face instead of each. They become electric by heat. Lustre splendent. Hard, but yields to the file, and easily broken. Specific gravity 3·25. It froths like zeolite before the blow-pipe, melting into a black enamel, or a dark green glass. According to Vauquelin's analysis, it contains forty-four silica, eighteen alumina, nineteen lime, fourteen oxide of iron, and four oxide of manganese.

AXINOMANCY, Axinomantia; from *αξινη*, an axe, and *μαντεια*, divination; an ancient species of divination, or a method of foretelling future events by means of an axe or hatchet. This art was in considerable repute among the ancients; and was performed, according to some, by laying an agate stone on a red hot hatchet, and also by fixing a hatchet on a round stake so as to be exactly poised; then the names of those that were suspected were repeated, and he at whose name the natchet moved was pronounced guilty.

AX'IOM, } Gr. *Αξιωμα*, from *αξιοω*,
Axiomat'ical. } to think worthy. A self-evident proposition.

The universal *axiom* in which all complaisance is included, is, that no man should give any preference to himself. *Johnson.*

That a conjectural critick should often be mistaken, cannot be wonderful, either to others or himself, if it be considered that in his art there is no system, no principal and *axiomatical* truth that regulates subordinate positions.

Johnson's Preface to Shakspeare.

Axiom, in rhetoric, is used by Hermogenes to denote grandeur, dignity, and sublimity of style.

Axioms, in logic. That the whole is greater than a part; that a thing cannot be, and not be at the same time; and that from nothing, nothing can arise; are axioms indisputable. Established principles in arts and sciences are also stiled axioms. Thus it is an axiom in physics, that nature does nothing in vain; that effects are proportional to their causes, &c. It is an axiom in geometry, that things equal to the same thing, are also equal to one another; that if to equal things you add equals, the sums will be equal, &c. It is an axiom in optics, that the angle of

incidence is equal to the angle of reflection, &c.

AXION, the brother of Alphesibœa, who murdered Alcmæon, his sister's husband, because he wished to take back a golden necklace he had given her.

AXIOPOLI, a town in Bulgaria. Long. 34° 0′ E., lat. 45° 40′ N. It was formerly called

AXIOPOLIS; a town of the Triballi, in Mæsia Interior.

AXIOS, a form of acclamation, anciently used by the people in the election of bishops. When they were all unanimous, they cried out *αξιος!* he is worthy! or *αναξιος!* unworthy!

AXIOSIS, *αξιοσις*, in rhetoric, denotes the third part of an exordium; sometimes called *αποδοσις*, and containing some new proposition more nearly relating to the subject, than the *προτασις*. Thus in Cicero's oration, pro Milone, the protasis is, Non possim non timere, judices, visa hâc nova judicii forma: the katascue, Nec enim ea corona confessus vester cinctus est qua solebat: the axiosis, Sed me recreat Pompei consilium, cujus sapientiæ non fuerit, quem sententiis judicium tradidit, telis militum dedere: the basis, Quamobrem adeste animis judices, et timorem, si quam habetis, deponite.

AXIOTEA, or Axiothea, a female philosopher of Greece, who lived in the time of Plato, and attended his lectures, dressed in the habit of a man.

AX'IS, AXLE, AXLED, AXLE-TREE. } Lat. *axis*, Gr. *αξων*, from *αγειν*, to go round. Axis is a line drawn through the centre of any body round which it revolves.

The line, that we deuise from thone to thother so,
As *axell* is; upon which the heaven's about do go.
Wyatt.

But mark me also, these mouinges of these seuen,
Be not aboue the *axeltree* of the first mouing heauen.
Id.

Inferior ministers, for Mars repair
His broken *axle-trees*, and blunted war.
Dryden. Virgil's Æneid. viii.

And bade her spirits bear him far,
In Merlin's agate-*axled* car,
To her green isle's enamelled steep,
Far in the navel of the deep.
T. Warton. The Grave of King Arthur.

Axis, in anatomy, the second vertebra of the neck, thus called because the first vertebra with the head, moves thereon, as on an axis.

Axis, in astronomy, is an imaginary right line supposed to pass through the centre of the heavenly bodies, about which they perform their diurnal revolutions.

Axis, in botany, a taper column placed in the centre of some flowers or catkins, about which the other parts are disposed.

Axis, in conic sections, a right line dividing the section into two equal parts, and cutting all its ordinates at right angles.

Axis, in geometry, the straight line in a plain figure, about which it revolves, to produce or generate a solid. Thus if a semicircle be moved round its diameter at rest, it will generate a sphere, the axis of which is that diameter.

Axis, in mechanics. The axis of a balance is that line which it moves, or rather turns about.

Axis, in optics, is that particular ray of light coming from any object which falls perpendicularly on the eye.

Axis, common or mean, in optics, a right line drawn from the point of concourse from the two optic nerves, through the middle of the right line which joins their extremity.

Axis, in peritrochio, one of the six mechanical powers, consisting of a peritrochium or wheel concentric with the base of a cylinder, and moveable together with it about its axis.

Axis, in zoology, a very remarkable animal of the deer kind in all respects, except that neither the male nor female have horns; the tail is considerably long, and the whole shape and make are extremely like those of the fallow deer. The female is smaller than the male, and both are of a reddish tawny color, variegated with spots of white; the belly is white. The voice is much more loud and shrill than that of the deer. It is plain that this creature is neither of the red nor fallow deer kind, whence Bellonius, who saw it at Cairo in Egypt, was induced to call it the Axis.

Axis, determinate, in a hyperbola, a right line which divides it into two equal parts, and at right angles, an infinite number of lines drawn parallel to each other within the hyperbola.

Axis, Magnetical, or Axis of a Magnet, a line passing through the middle of a magnet, lengthways, in such manner, as that however the magnet be divided, provided the division be made according to a plane wherein such line is found, the load-stone will be made into two load-stones. The extremities of such lines are called the poles of the stone.

Axis of a Planet, is a line drawn through the centre, about which the planet revolves. The sun, moon, and all the planets, except Mercury and Saturn, are known, by observation, to move about their several axes; and the like motion is easily inferred from those two.

Axis of a Sphere, or Circle, is the same as diameter.

Axis of a Vessel, is an imaginary right line passing through the middle of it perpendicularly to its base, and equally distant from its sides.

Axis of Incidence in dioptrics, a right line drawn through the point of incidence perpendicular to the refracting surface.

Axis of Oscillation, is a right line parallel to the horizon, passing through the centre about which a pendulum vibrates.

Axis of Refraction, is that which is made by the ray of incidence directly prolonged on the inside of the second medium by the ray of refraction.

Axis of the Cylinder, is properly that quiescent right line, about which the parallelogram turns, by whose revolution the cylinder is formed. Though, both in right and oblique cylinders, the right line joining the centres of the opposite bases, is also called the axis of the cylinder.

Axis of the Earth, is a right line upon which the earth performs its diurnal rotation from west to east.

Axis of the Ionic Capital, is a line passing perpendicularly through the middle of the eye of the volute.

Axis of the Zodiac, a line supposed to pass through the earth and terminate in the poles.

Axis, Spiral, is the axis of a twisted column drawn spirally, in order to trace the circumvolutions without.

AXMINSTER, a town of Devonshire, situated on the river Ax, in the great road between London and Exeter, being twenty-five miles east of the latter place. It was a place of some note in the time of the Saxons, and now contains about 2500 inhabitants. It has a manufactory of broad and narrow cloths, and an extensive one of carpets, manufactured after the Turkish manner: its carpets are often preferred to those from Turkey. The petty sessions are holden here. King Æthelstan founded a minster here, for seven priests, to pray for the souls of those who were slain in a battle which he fought with the Danes at Bremaldown. It has four fairs: on the 24th of February, 25th of April, 24th of June, and Wednesday after Michaelmas, with a market on Saturday. It is 147 miles west of London. Long. 3° 8′ W., lat. 50° 45′ N.

AXOLOTI, in icthyology, a singular fish found in the lakes of Mexico. It has four feet like the lizard, no scales, a matrix like a woman, and the menstrual flux. It has the taste of an eel. See Lacerta.

AXONES; *αξωνες*; public laws of the ancient Greeks, particularly of the Athenians, so named from their mode of publication.

AXTEL (Daniel), a regicide, and colonel in the service of the long parliament, was of a good family, and had a tolerable education. As he was of a serious disposition, and had been very early tinctured with puritanical principles, he became a fervent follower of such ministers as distinguished themselves by their zealous preaching. His great attachment to these people, and the natural warmth of his temper, were the cause of his going into the army, in which he behaved with so much zeal, courage, and conduct, that he rose by degrees to the several commands of captain, major, and lieutenant-colonel, in a regiment of foot. It was in this last capacity that he acted with great vehemence against all endeavours for a reconciliation with the king. When the king was brought before the high court of justice, colonel Stubberd and Axtel had the command of the soldiers below stairs. The king demanded of sergeant Bradshaw, the president, by what authority they brought him there? and the president appealing to the charge, which was in the name of the Commons of England, lady Fairfax and Mrs. Nelson are said to have cried out, 'It is false; not a half, not a quarter of the people.' Upon this colonel Axtel cried out, 'Down with the w——; shoot them!' After the sentence, the king was carried through King-street, in a sedan, by two porters, who, out of reverence, went bare-headed, till the soldiers under Axtel's command beat them, and forced them to put on their hats. After the king's death, when Cromwell was sent into Ireland, the regiment in which Axtel served was drawn out by lot for that expedition, which occasioned his going over into that kingdom, where he made a considerable figure, was much esteemed, and raised by Cromwell to the command of a regiment, and the government of Kilkenny. After the Protector's death Axtel endeavoured to conceal himself, suspecting that he might be called to an account for the share he had taken in the trial of the king; but before the close of the month he was discovered and committed to prison. On the 10th of October the grand jury for Middlesex found bills against twenty-eight persons, for their concern in the king's death, of whom Axtel was the last. His trial, by the elaborate defence he made, lasted upwards of three hours: but the jury, without going from the bar, found him guilty; and he was executed, on the 19th, at Tyburn.

AXUM, Axoma, Axomis, or Aksum, in Abyssinia, the capital of a powerful state in the time of the Ptolemies, and perhaps of all Abyssinia; still retaining monuments of its former splendor. An ancient throne of granite, and two rows of obelisks, struck Mr. Salt as amongst the most beautiful ancient relics he had ever seen. But perhaps the most curious of all is a long Greek inscription, which records the victories of one of the Ptolemies and the extent of their empire. Frumentius, the apostle of Ethiopia, was the first bishop of Axum, and many churches had been excavated from the surrounding mountains before the close of the fifth century. It carried on a considerable trade with India and Arabia, through the port of Adulis. It is the place where the kings of Abyssinia are crowned. Mr. Salt found it to be in lat. 14° 6′ 36″ N. Its present population is about 3000. The inhabitants are rude and inhospitable. They wear coarse woollen clothes. The monks prepare the best parchment in all Abyssinia. The church of Axum appears to have been built in 1657, and is considered by Mr. Salt, excepting that of Chelicut, as the finest in the province of Tigré. The town stands agreeably sheltered by hills, at the corner of an extensive valley. It is described by Bruce as containing 600 houses.

AXUNGIA, in a general sense, denotes old lard, or the driest and hardest of any fat in the bodies of animals; but more properly it signifies only hog's lard.

Axunnyia Lunæ, an affected name given by the German chemists to the terra goltbergensis, from their imagining that it contains some particles of silver, and owes to them its virtues in medicine.

Axungia Solis is used for the terra silesiaca, and said to be good against the plague, pestilential fevers, &c.

Axungia Vitri, Sandiver, or salt of glass, a kind of salt which separates from the glass while it is in fusion. It is of an acrimonious and biting taste. The farriers use it for cleansing the eyes of horses. It is also made use of for cleansing the teeth; and it is sometimes applied to running ulcers, the herpes, or the itch, by way of desiccative.

AXYLUS, an ancient hero of Arisba, celebrated by Homer for his hospitality, which gained him the appellation of the Friend of Mankind.

AXYRIS, a genus of the triandria order, and monœcia class of plants, ranking in the natural method under the twelfth order holoraceæ. The

calyx of the male is tripartite; it has no corolla. The calyx of the female consists of two leaves; it has two styli and one seed. There are four species, none of them natives of Britain.

AY. Sax. Ever. For ever.

A kyng þat strines with hise, he may not wele spede,
Where so he restis or riues he lyues *ay* in drede.
R. Brunne.

And now in darksome dungeon, wretched thrall,
Remedyless for *aye* he dothe him holde.
Spenser's Faerie Queene.

Either prepare to die,
Or on Diana's altar to protest
For *aye*, austerity and single life.
Shakspeare.

The soul, though made in time, survives for *aye*;
And, though it hath beginning, sees no end.
Sir J. Davies.

And join with thee calm peace, and quiet,
Spare fast, that oft with gods doth diet,
And hears the muses in a ring,
Ay round about Jove's altar sing.
Milton's Il Penseroso.

O to thy [the cock's] cursed scream discordant still,
Let harmony *aye* shut her gentle ear.
Beattie's Minstrel.

AY, a town of France, in the department of Marne, near the river Marne, remarkable for its excellent wines. It lies twelve miles south of Rheims, and one mile and a half north-east of Epernay. Inhabitants 2600.

AYAG, or KAYACHU, one of the Andreanofskie islands, in the eastern or Pacific Ocean, about 150 versts in circumference, and consisting of several high and rocky mountains, the intervals of which are bare heath and moor ground; but in the whole island there is not one forest-tree. The productions resemble those of Kamtschatka.

AYAMONTE, a sea-port town of Andalusia in Spain, with a strong castle built on a rock; seated on the mouth of the Guadiana, eighty-five miles north-west of Cadiz. It has a commodious harbour, a productive sardel fishery, fruitful vineyards, and excellent wine. Population about 5000.

AYAS, a town and castle of Caramania, in the government of Adana, on the bay of Ayas, near the Jypoo, and on the west side of the Gulf of Scanderoon, or Iskenderoon, the ancient Sinus Issicus. It is fortified all round; and here are the remains of a fort and artificial pier. A little to the westward is a round tower with an Arabic inscription. Myriads of fish, numerous fine turtle, and aquatic birds, abound on the shore. This place is supposed to be the ancient Ægæ. Long. 35° 48′. E., lat. 36° 46′ N.

AYASH, a village on the same coast, surrounded by the ruins of a town that has occupied a considerable space of ground, and containing the remains of a theatre and many other edifices. The most conspicuous of the whole is a temple, situated on a projecting eminence. Its columns are of the composite order, fluted, and about four feet in diameter. This is conjectured to have been the ancient Sebasta.

AYAVIRI, a town of Lima, in Peru, remarkable for many stately tombs of the Peruvian nobility.

AYBAR, a town of Spain, in Navarre, on the Arragon, famous for a battle fought here in the year 1451, betwen John king of Castile, and his son Don Carlos, in which the latter was defeated and taken prisoner. Three miles south of Sanguesa.

AYDON BRIDGE, or HEYDON BRIDGE, a town in Northumberland, five miles west of Hexham, so named from its bridge over the Tyne. It has a market on Tuesday, and a fair on July 21st, 22d, 23d, and 24th.

AYE. *Ayez.* The imperative of the French verb *avoir*, to have; signifying have it, possess it, enjoy it. The expression is similar in Swedish, German, and Dutch.

Return you thither?
Ay, madam, with the swiftest wing of speed.
Shakspeare.

What say'st thou? wilt thou be of our consort?
Say *ay*, and be the captain of us all. *Id.*

Sometimes in mutual sly disguise,
Let *ayes* seem *nos*, and *nos* seem *ayes*;
Ayes be in courts denials meant,
And *nos* in bishops give consent.
Thus *aye* proposed, and, for reply,
No for the first time answer'd *aye*.
They parted with a thousand kisses,
And fight e'er since for pay like Swisses.
Gay's Fables. Aye and No.

AYEK JEMANI, a species of cornelian, much valued by the Arabians.

AYEL, Fr. in law, a writ which lies where the grandfather was seized in his demesne on the day he died, a stranger enters the same day and dispossesses the heir.

AY'EN, AY'ENST. } See AGAIN.

AYENIA, in botany, a genus of the pentandria order and gynandria class of plants, ranking in the natural method under the thirty-seventh order, columniferæ. The calyx has two leaves; the petals are in the form of a star, with long ungues; and the capsule has five cells. There are three species all natives of the West Indies.

AYERBE, or AYERVE, the capital of a barony, in the district of Huesca, Arragon, situated at the foot of the Pyrenees, thirty-two miles north of Saragossa.

AYERSTOWN, a town of the United States, in New Jersey, thirteen miles south-east from Burlington.

AYESHA, the wife of Mahomet, and daughter of Abubeker. The impostor had a greater regard for her than for any of his wives, though she had no children; and his followers highly respected her. She opposed Ali's succession and raised an army against him; but after a severe contest was made prisoner. The conqueror, however, dismissed her with civility. This turbulent woman died in 677, aged sixty-seven.

AYGULA, in zoology, a species of simia or ape.

AYGULUS, in entomology, a species of scarabæus that inhabits India.

AYLESBURY (Sir Thomas), merits a place in a work of this kind, not only as a learned man himself, but as the patron of men of letters. He was born in London in 1576, was educated

at Westminster, and studied at Oxford, where he took his degree of A.M. in 1605. He became secretary to Charles earl of Nottingham, lord high admiral, and gave so many proofs of his skill in mathematics, that he retained his secretaryship under the duke of Buckingham upon his succeeding the earl. By the duke's influence he was appointed master of requests, and master of the mint, and created a baronet. The profits of these lucrative offices he applied to the most benevolent purposes. He not only made all men of science welcome to his table and afforded them his best countenance, but also gave regular pensions to such of them as were in narrow circumstances. It is to be regretted that a man of so benevolent a character should himself have afterwards experienced adversity. In consequence of his steady adherence to the king, he was, in 1642, stripped of his places and estate, but he bore up cheerfully under his misfortunes, and in 1649 retired with his family to Brussels. He died at Breda in 1657, aged eighty-one.

AYLESBURY (William), the son of the baronet, took his degree of A.M. at Christ Church, in the sixteenth year of his age, and like his father, was a sufferer by his adherence to the cause of royalty. King Charles I. early appointed him travelling preceptor to George Villiers duke of Buckingham, and his brother, Lord Francis. During their travels in Italy he was nearly killed by an assassin. He returned to England during the civil war, but after the king's death retired to Antwerp. In 1650 he again returned to England, where he experienced great difficulties, being often in want of daily necessaries. At last, in 1657, the protector having fitted out a fleet for the West Indies, he was engaged as secretary to the governor of Jamaica, the climate of which soon cut him off.

AYLESBURY. See AILESBURY.

AYLESFORD. See AILESFORD.

AYLETS, or SEA SWALLOWS. In heraldry, they are often called Cornish choughs, and are painted sable, beaked, and legged gules.

AYLETT (Robert), an English author of the seventeenth century. He was educated at Trinity Hall, Cambridge, where he took the degree of LL.D. in 1614, and afterwards became master in Chancery. He wrote Susanna, or the Arraignment of the Two Elders, a poem, 1622, 8vo. besides several other poetical pieces. He is thought by some to have been the author of the Britannica Antiqua Illustrata, which is generally attributed to his nephew, Aylett Sammes.

AYLIN (John), an Italian writer of the fourteenth century. His chief work is a History of Friuli, printed in Muratori's Antiquitates Italicæ medii Ævi, Milan, 1740.

AYLMER (John), bishop of London in the reign of Elizabeth, was born in 1521, at Aylmerhall, in Tilney, Norfolk. While a boy he was distinguished for his quick parts, by the marquis of Dorset, afterwards duke of Suffolk; who sent him to Cambridge, made him his chaplain, and tutor to his children. One of these was the unfortunate Lady Jane Gray, who soon became perfectly acquainted with the Latin and Greek. His first preferment was to the archdeaconry of Stow, which gave him a seat in the convocation held in the first year of queen Mary, where he resolutely opposed the return to popery, to which the generality of the clergy were inclined. He was soon after obliged to take shelter among the Protestants in Switzerland. On the accession of Elizabeth he returned to England. In 1562 he obtained the archdeaconry of Lincoln; and was a member of the famous synod of that year, which reformed and settled the doctrine and discipline of the church of England. In 1576 he was consecrated bishop of London. He died in 1594, aged seventy-three; and was buried in St. Paul's. He published An Harbrowe for faithful and trewe Subjects against the late blowne Blaste concerning the Government of Women, &c. In answer to Knox, who published a book at Geneva under this title, The first Blast against the monstrous Regimen and Empire of Women. Strype gives the following instance of his courtly courage:—Queen Elizabeth being once tormented with the tooth-ache, and yet afraid of having the tooth drawn, bishop Aylmer being by, to encourage her majesty, sat down in a chair, and calling to the operator, 'Come,' said he, 'though I am an old man, and have but few teeth to spare, draw me this;' which was done; and the queen seeing him make so slight a matter of it, sat down and had hers drawn also.

AYLOFFE (Sir Joseph), of Framfield in Sussex, was descended from a Saxon family anciently seated at Bocton Aylof, in Kent, in the reign of Henry the Third. He was born about 1708; received the early part of his education at Westminster school; admitted of Lincoln's Inn 1724; and in the same year was entered a gentleman commoner at Oxford, which he quitted about 1728; was elected F.A.S. Feb. 10, 1731; one of the first council, under their charter, in 1751; vice-president and F.R.S. June 3, 1731. He prevailed on Mr. Kirby, painter of Ipswich, to make drawings of a great number of monuments and buildings in Suffolk, of which twelve were engraved, with a description, 1748; and others remain unpublished. On the building of Westminster-bridge he was appointed secretary to the commissioners, 1736-7; and on the establishment of the Paper-Office on the respectable footing it is at present, by the removal of the State Papers from the old gate at Whitehall to new apartments at the treasury, he was nominated the first in the commission for the care and preservation of them. In 1757 he circulated proposals for printing by subscription, Encyclopædia; or, a rational Dictionary of Arts, Sciences, and Trade. In 1772 he published in 4to. Calendars of the Ancient Charters, &c. and of the Welsh and Scottish Rolls now remaining in the Tower of London, &c. and in the introduction gives a judicious and exact account of our Public Records. He drew up the account of the chapel of London-bridge, of which an engraving was published by Vertue in 1748, and again by the Society of Antiquaries, 1777. His historical description of the interview between Henry VIII. and Francis I. on the Champ de Drap d'O- from an original painting at Windsor, and his account of the paintings of the same age at Cowdray, were inserted in the third volume of the Archæologia, and printed separately to accom-

pany engravings of two of these pictures by the Society of Antiquaries, 1775. His account of the body of Edward I. as it appeared on opening his tomb, 1774, was printed in the same volume p. 376. His intimate acquaintance with every part of Westminster Abbey displayed itself in his accurate description of five monuments in the choir, engraved in 1779 by the same society. He superintended the new edition of Leland's Collectanea, in nine vols. 8vo.; and also of the Liber Niger Scaccarii, in two vols. 8vo.; to each of which he added a valuable appendix. He also revised an edition of Hearne's Curious Discourses, 1771, two vols. 8vo.; and the Registrum Roffense, published by Mr. Thorpe, in 1769, folio. At the beginning of the seventh volume of Somers's Tracts is advertised A Collection of Debates in Parliament before the Restoration, from MSS. by Sir Joseph Ayloffe, bart. which is supposed never to have appeared. Sir Joseph died at his house at Kennington-lane, Lambeth, April 19, 1781, aged seventy-two.

AYMAR (James), a celebrated impostor, born at Veran, in Dauphine. He became famous, and acquired considerable wealth about the end of the seventeenth century, by giving out that he was in possession of a divining rod for bringing to light hidden treasure. The cheat was detected, and he was suffered to fall back into his former obscurity; but the noise he had raised gave occasion to De Vallemont's learned book on the powers of the divining rod.

AYMARES, a district of Peru, forty leagues south-west of that city, abounding in sugar, cattle, corn, and mines of gold and silver.

AYMON (John), a Roman Catholic priest of Piedmont, who took part with the Protestant cause, and afterwards returned to the Catholic faith. Cardinal de Naoilles gave him a pension, and he wrote several books in opposition to the Reformers. He likewise published the letters of Cyril Lucar, Les Synodes nationaux des Eglises reformées de France, 1710, 2 vols. 4to.; and Tableau de la Cour de Rome, 1710, 12mo.

AYOQUANTOTOTL, or Avis Ayoquantotol, in ornithology, the name under which the oriolus xanthornus of Gmelin is described by some old writers.

AYORA, a town of Spain, in Valencia. Long. 16° 40′ E., lat. 39° 5′ N.

AYR, or Air, in Scotland. See Air.

Ayr, or Air, a river of France, in the duchy of Bar, which abounds in fish, and falls into the Aisne, near Grandpré, in the department of the Ardennes.

AYRES, an English penman of the seventeenth century. He was employed in the service of Sir William Ashhurst, in 1694, to whom he dedicated a treatise, entitled Arithmetic made Easy. In 1695 he published his Tutor to Penmanship, engraved by John Strut. He lodged at the Hand-and-Pen, St. Paul's Church-yard, where he probably kept a school.

AYRMIN, or Ayermin (William), a bishop of Norwich in the reigns of Edward II. and III. was descended of an ancient family at Osgodby in Lincolnshire. He was a canon in the cathedral of York, and afterwards in that of Wells; and was for some time keeper of the seal, and vice-chancellor to king Edward II. under John, bishop of Norwich. About A. D. 1319, a war having broke out between England and Scotland, Ayrmin was taken prisoner in a battle between the Scotch and Yorkists. Recovering his liberty he was made chancellor under Edward III. and afterwards treasurer. Being sent ambassador to the court of Rome, he neglected the business of his embassy, and employed his time and interest in obtaining the bishopric of Norwich, which was then vacant; in which application meeting with success, he returned to take possession of that see: which the king hearing, and being disgusted at his proceedings, sent soldiers to Norwich to apprehend him; but Ayrmin lay hid in the cathedral church, till by the interposition of friends the king was reconciled to him, and consented to his consecration. He died in 1337.

AYR-MOSS, a place in the parish of Auchinleck in Ayrshire, memorable for a defeat of a party of those friends of religion and liberty, called Covenanters, during the turbulent and oppressive reign of Charles II.

AYRON, a river of Wales, in Cardiganshire.

AYR-SHIRE. See Air.

AYRTON (Edmund), was born at Ripon, Yorkshire, in the year 1734, and died in 1808. At the age of thirty he became one of the gentlemen of the Chapel Royal, St. James's, and subsequently a vicar choral of St. Paul's and Westminster Abbey. In 1784 he took his degree of doctor of music in the university of Cambridge, on which occasion he composed a grand anthem for a full orchestra, afterwards performed at St. Paul's Cathedral, on the day appointed for the general thanksgiving for peace in 1784. Dr. Ayrton took a leading part in the commemoration of Handel in Westminster Abbey.

AYRY, or Eyery. Ey, Teutonic, an egg; eyr, eggs; the eyery, or eggery, where the eggs are deposited. Used of hawks, or other birds.

Yon sun-bred *ayry*, whose immortal birth
Bears you aloft beyond the sight of earth.
The heaven-touch'd feathers of whose sprightly wings
Skirts (from above) the palaces of kings.
Drayton. The Owl.

The eagle and the stork
On cliffs and cedar tops their *eyries* build.
Milton. Paradise Lost, book vii.

I should discourse on the brancher, the haggard, and then treat of their several *ayries*.
Walton's Angler.

AYSCOUGH (George Edward), only son of Dr. Ayscough, dean of Bristol, was a lieutenant in the guards. He wrote Semiramis, a tragedy; and Letters from an officer in the guards to his friend in England; containing some accounts of France and Italy, 8vo. 1778. He died October, 1779.

AYSCUE (Sir George), a gallant English admiral, descended from a good family in Lincolnshire. He was knighted by Charles I., which however did not withhold him from adhering to the parliament in the civil war: he was by them constituted admiral of the Irish seas, where he did great service to the protestant interest, and contributed much to the reduction of the island.

In 1651 he reduced Barbadoes and Virginia, then held for the king, to the obedience of the parliament; and soon after the Restoration behaved with great honor in the war with the Dutch. In the famous engagement in the beginning of June 1666, when Sir George was admiral of the white squadron, his ship, the Royal Prince, ran upon Galloper sand; where, being surrounded with enemies, his men obliged him to strike. He went no more to sea after this, but spent the rest of his days in retirement.

AYSEAUX, a castle and marquisate of the Netherlands, in Hainault, on the Dender.

AYSERIUS, or ASSERIUS. See ASSER.

AYTONIA, in botany, a genus of the monadelphia order, and the pentandria class of plants; the characters of which are: the calyx is quinquepartite; the corolla consists of four petals; the berry is dry, quadrangular, unilocular, and many seeded. There is but one species, viz. A. Capensis, a native of the Cape.

AYUTLA, a river of South America, in the province of Guatimala, which flows into the Pacific Ocean. Lat. 14° 55′ N.

AZAB, a place on the coast of Abyssinia, in lat. 13° N., where Bruce says 'he found the remains of a very ancient aqueduct.' He supposes it to be the Sabæ of Strabo; and the country of the Sabæi so famous for their myrrh and frankincense. 'Those gums,' he adds, 'are still produced in the neighbourhood.' Behind are pits of rock salt, whence the pieces used as coin by the Abyssinians are extracted. See *Bruce*, vol. i. *Strabo*. xvi. *Diod*. iii.

AZAB, in the Turkish armies, a distinct body of soldiery who are great rivals of the Janissaries. In the oriental languages the word signifies an unmarried person; the original rule being—that this corps should be composed of single men.

AZABE KABERI, from kaber, sepulchre, and azab, torment, denotes a temporary punishment, which, as the Mahommedans say, the wicked must suffer after death. Their crimes are hereby expiated, and Mahomet opens the gate of Paradise to all who believe in him.

AZALDUS, in old law Latin, a sorry horse.

AZALEA, AMERICAN UPRIGHT HONEYSUCKLE, a genus of the monogynia order, and pentandria class of plants; ranking, in the natural method, under the eighteenth order, bicornes. The corolla is bell-shaped; the stamina are inserted into the receptacle; and the capsule has five cells. There are six species, of which the most remarkable are the following: 1. A. nudiflora, or red American upright honeysuckle, grows taller than the viscosa, and in its native country will sometimes arrive at the height of twelve feet, but in Britain never rises to above half that height. It has several stems with oblong smooth leaves. 2. A. rubriflora, a species with bright red flowers, was found by Mr. Lightfoot upon the tops of many mountains in the Highlands of Scotland. 3. A. viscosa, with a white flower, is a low shrub, arising with several stems to the height of two or three feet. The leaves come out in clusters without any order at the end of the shoots, and their edges are set with very short teeth which are rough. The flowers come out in clusters between the leaves, have much the appearance of honeysuckle, and are as well scented.

AZAMOR, a small sea-port town of the kingdom of Morocco in Africa. It is situated on the river Morbeya, in the province of Duquella, at some considerable distance from its mouth. This town, though formerly very considerable, is obstructed in its maritime commerce by the dangerous entrance of the river. It was unsuccessfully besieged by the Portuguese in 1508; it was taken however, in 1513, by the duke of Braganza, but abandoned about the end of the sixteenth century. Mr. Jackson calculates its population at 1000. It is eighty miles north of Morocco.

AZARADEO, a sea-port town of Brasil, in the bay of Spiritu Santo. Long. 60° 10′ W., lat. 20° 18′ S.

AZARAKITES, a sect of Mahommedan Arabs.

AZARECAH, a sect of heretical Mussulmans, who acknowledge no punishment, temporal or spiritual.

AZARIAH; from עזר, and יה, i. e. the help of the Lord; king of Judah. See UZZIAH. Also the name of various high priests and princes of the Jews.

AZARIAS, a Jewish rabbi and historian of the sixteenth century. In 1574 he published at Mantua, in Hebrew, a book entitled The Light of the Eyes. Many historical and miscellaneous subjects are treated of in this work; and it contains a Hebrew version of the letter of Aristeas on the Septuagint.

AZARIST, a city of Khieva, on the river Amo, which was visited by the English factors in 1741.

AZAROLA, the service tree.

AZARUM, a small, dry, blackish, stringy, medicinal root, much used in France as a specific for the farcy in horses. The azarum, called also nardus sylvestris, grows in the Levant, Canada, and about Lyons in France. The first is reputed the best. It is given in powder, from the quantity of one ounce to two.

AZAY, or ASSAIE-LE-RIDEAU, a town of France, in the department of the Indre and Loire, situated on the Indre, the head of a canton, with a castle, and 1700 inhabitants. It was in former times a place of strength, and the seat of a royal governor. Five leagues south-west of Tours.

AZAY-SUR-CHER, a town in France, situated on the river Cher, and belonging to the arrondissement of Tours, in the department of the Indre and Loire. Number of houses above 230. Two leagues and a half E. S. E. of Tours. Many other villages and hamlets in France bear this name.

AZAZEL, a word relating to the institution of the scape-goat, in the Jewish religion, respecting which there are various opinions. St. Jerome and Theodoret call the goat itself by this name. Dr. Spencer says the scape-goat was to be sent to Azazel, by which is meant the devil. M. le Clerc translates it præcipitium, making it to be that steep and inaccessible place to which the goat was sent, and where it was supposed to perish.

AZED, in the materia medica, a name given by the Arabian writers to a kind of camphor, which they make the third in value, placing it

after the alcansuri and abriagi. The first of these was the finest of all the kinds of camphor, and was collected tolerably pure from the tree, as it grew in Cansur, the place whence it was named. The second was the same camphor, rendered yet more pure by sublimation; this was a discovery of one of the kings of that country, and the camphor was named from him. The third kind, or azed, was the same with what we now receive from the Indies, under the name of crude or rough camphor. The word azed signifies only large, and was used to express the camphor formed into large cakes. Avicenna says this camphor was gross, of a dusky color, and much less bright and pellucid than the other kinds.

AZEDARACH, or AZERADACH, in botany, the bead-tree.

AZEEMABAD, the Mahommedan name of PATNA, which see.

AZEITAO, a town in Portuguese Estremadura, south of the Tagus, with a manufacture of chintz, and various dye-houses. Population 2350. Five miles N.N.W. of Setuval.

AZEKAH, in ancient geography, a city of the Amorites, in the lot of Judah; situated between Eleutheropolis and Aelia; where the five kings of the Amorites and their army were destroyed by hail.

AZELBURG, a town of Bavaria, formerly called Augusta ACILIA.

AZELFOGE, in astronomy, a fixed star of the second magnitude, in the swan's tail.

AZEM, ASEM, ASSAM, or ACHAM, a country of Asia, north of Ava. See ASSAM.

AZEMAFOR, in alchemy, red lead.

AZEMECH, the Arabian name for the star, called the virgin's spike.

AZENAY, a town of France, in Poitou, department of the Vendee, arrondissement of Sables d'Olonne. Population 3000. Five leagues north of Sables d'Olonne.

AZERBIJAN, or ADERBEITZAN, a province of Persia, part of the ancient Media, bounded by Ghilan and the Caspian sea on the east, and on the west by Kurdistan and Armenia. It is separated from the latter by the Araxes, and from the province of Irak on the south, by Kizilozein, or the Golden stream. The climate, which is ordinarily temperate, is cold in winter, and severely felt by the poorer inhabitants, from the scarcity of fuel. The province is watered by the two rivers already named, and by the Jungatty, which is larger than either, and abounds in fish; the Yezdian, Agi, and other lesser streams. On the frontier also is the lake Urumea, which is salter than the sea. Its minerals are lead, copper, saltpetre, and sulphur; here is also a kind of beautiful transparent marble, or jasper, which takes the highest polish, and is used in the buildings of Tabriz, Shiraz, and Ispahan, under the name of Tabriz marble. The cultivation of the land, which consists of fine undulating eminences and rich valleys, is here carried on chiefly by irrigation; the oxen are used for the plough, and the best soil yields from fifty to sixty fold. Most of the villages are surrounded with orchards and gardens, which produce fruit of almost every description. A considerable quantity of wine is made; and provisions are cheap and abundant. The name of this province is said to signify the country of fire, and is supposed to have been derived from the number of fire temples of the Guebres. It is divided into twelve districts, in which are several cities and towns of importance, as Tabriz, or Tauris, the capital, containing 30,000 inhabitants, Urumea, Shebuster, and Maragah.

AZERGUE, BAHR-EL, or the BLUE RIVER, the principal stream of Abyssinia, which, rising in the kingdom of Gojam, passes through the lake of Dembea, and, after a winding course through Abyssinia and Sennaar, falls into the Nile above Gerri. Travellers described it as the principal branch of the Nile, till D'Anville showed that this distinction belonged to the Bahr-el-Abiad.

AZEVEDO (Ignatius), a Portuguese jesuit, born in 1527. He was heir to a handsome fortune, but turned his back upon it for a religious life, and went as a missionary to India. In 1570 he was going out a second time, when the ship was taken by pirates, who killed all the missionaries, about forty in number.

AZIMEN, in astrology, certain degrees in the zodiac, which, when they are ascendant, persons born under them are said to be afflicted with lameness, or some other imperfection.

AZIMUTH, in astronomy, an arch of the horizon, intercepted between the meridian of the place and the azimuth, or vertical circle passing through the centre of the object, which is equal to the angle of the zenith, formed by the meridian and vertical circle. It is found by this proportion: As the radius to the tangent of the latitude of the place, so is the tangent of the sun's or star's altitude, for instance, to the cosine of the azimuth from the south, at the time of the equinox.

AZIMUTH CIRCLES are represented by the rhumbs on common sea charts, and on the globe they are represented by the quadrant of altitude, when screwed in the zenith. On these azimuths is reckoned the height of the stars and of the sun when not in the meridian.

AZIMUTH COMPASS, an instrument for finding either the magnetical azimuth or amplitude of an heavenly object. The learned Dr. Knight invented some time ago a very accurate and useful sea-compass, which is at present used in the navy, and will be found described under the article COMPASS. This instrument, with the following contrivance added by the ingenious Mr. Smeaton, answers the purposes of an azimuth and amplitude compass. The cover of the wooden box being taken off, the compass is in a condition to be made use of in the binnacle, when the weather is moderate; but if the sea runs high, as the inner box is hung very free upon its centre, the better to answer its other purposes, it will be necessary to slacken the milled nut, placed upon one of the axes that support the ring, and to lighten the nut on the outside that corresponds to it. By this means, the inner box and ring will be lifted up from the edges upon which they rest when free, and the friction will be increased, and that to any degree necessary to prevent the too great vibrations which otherwise would be occasion-

by the motion of the ship. To make the compass useful in taking the magnetic azimuth or amplitude of the sun and stars, as also the bearings of headlands, ships, and other objects at a distance, the brass edge, designed at first to support the card, and throw the weight thereof as near the circumference as possible, is itself divided into degrees and halves, which may be easily estimated into smaller parts if necessary. The divisions are determined by means of a catgut line, stretched perpendicularly with the box, as near the brass edge as may be, that the parallax, arising from a different position of the observer, may be as little as possible. Underneath the card are two small weights, sliding on two wires, placed at right angles to each other; which being moved nearer to, or farther from, the centre, counterbalance the dipping of the card in different latitudes, or restore the equilibrium of it where it happens by any other means to be too much out of level. There is also added an index at the top of the inner box, which may be put on and taken off at pleasure; and serve for all altitudes of the object. It consists of a bar, equal in length to the diameter of the inner box, each end being furnished with a perpendicular stile, with a slit parallel to the sides thereof: one of the slits is narrow, to which the eye is applied; and the other is wider, with a small catgut stretched up the middle of it, and from thence to the top of the other. There is also a line drawn along the upper surface of the bar. These four, viz. the narrow slit, the horizontal catgut thread, the perpendicular one, and the line on the bar, are in the same plane which disposes itself perpendicular to the horizon, when the inner box is at rest and hangs free. This index does not move round, but is always placed on so as to answer the same side of the box. When the sun's azimuth is desired, and his rays are strong enough to cast a shadow, turn about the wooden box till the shadow of the horizontal thread, or, if the sun be too low, till that of the perpendicular thread, in one stile, or the light through the slit on the other, falls upon the line in the index bar, or vibrates to an equal distance on each side of it, gently touching the box if it vibrates too far: observe, at the same time, the degree marked upon the brass edge by the catgut line. In counting the degree for the azimuth, or any other angle that is reckoned from the meridian, make use of the outward circle of figures upon the brass edge; and the situation of the index bar, with regard to the card and needle, will always direct upon what quarter of the compass the object is placed. But if the sun does not shine out sufficiently strong, place the eye behind the narrow slit in one of the stiles, and turn the wooden box about, till some part of the horizontal or perpendicular thread appears to intersect the centre of the sun, or vibrate to an equal distance on each side of it, using smoked glass next the eye if the sun's light is too strong. In this method another observer will be generally necessary, to note the degree cut by the nonius, at the same time that the first gives notice that the thread appears to split the object. The other observations will be easily performed: only, in case of the sun's amplitude, take care to number the degree by the help of the inner circle of figures on the card, which are the complement of the outer to 90°; and, consequently, show the distance from east to west. The azimuth of the stars may also be observed by night; a proper light serving equally for one observer to see the thread, and the other the degree upon the card. It may not be amiss to remark farther, that in case the inner box should lose its equilibrium, and consequently the index be out of the plane of a vertical circle, an accurate observation may still be made, provided the sun's shadow is distinct; for, by observing first with one end of the index towards the sun, and then the other, a mean of the two observations will be the truth.

AZIMUTH DIAL, a dial whose gnomon is perpendicular to the plane of the horizon.

AZIMUTH, MAGNETICAL, an arch of the horizon intercepted between the azimuth, or vertical circle, passing through the centre of any heavenly body, and the magnetical meridian. This is found by observing the object with an azimuth compass.

AZINCOURT, or AGINCOURT. See AGINCOURT.

AZLEEL, the name of an angel mentioned in the book ascribed to Enoch.

AZMUT, or ASMUS, an ancient and large town of Natolia, eighty-four miles south-east of Scutari. It is inhabited by Greek christians.

AZO, a town of Asia in the East Indies, seated on the frontiers of Azem, on the river Laquia.

Azo I. and II. earls of Este in Italy, in the tenth century. They claimed their descent from the Accii, a patrician family of ancient Rome Their posterity settling afterwards in Germany, gave rise to the illustrious house of Brunswick; from which that of Hanover and the present royal family of Great Britain are lineally descended.

AZOF, or Azov, a town and fortress of Russia, in the government of Yekatorinoslaw, at the mouth of the Don; lat. 46° 53′ N., long. 39° 14′ E. When Dr. Clarke saw it in 1800, it did not contain more than fifty houses; the garrison consisted of a few worn-out invalids, and the works were abandoned to decay. It is surrounded by a swamp; and the interior of the country is a barren desert. It was anciently a considerable port; but the waters of the bay have been diminishing for many years. Tanais is mentioned by Strabo, as a settlement of the Bosporani, but Dr. Clarke could find no trace of the ancient town near the site of Azov, and supposes it must have been at the embouchere of the Danaetz or northern arm of the Don. Its ancient history is very obscure; but it passed from the Polovtzes to the Genoese, who called it la Tana; was wrested from them by Tamerlane in 1392; and possessed, after his decease, by the kháns of the Krim till 1471, when it fell into the hands of the Turks. Peter the Great took it by assault, and laid out large sums upon improving its fortifications, but was obliged to give it up at the peace of 1711. The fortifications were demolished, in compliance with the terms made at the peace of Belgrade in 1739; but it was finally ceded to Russia ir 1774.

The sea of Azof, named from the above town, was the Palus Mæotis of the ancients, and the Mar de Zabacche of the middle ages. It is 210 miles long, and about fifty broad; though pro-

perly only a bay of the Black sea, with which it is united by the straits of Caffa (Keffeh). Its principal port is Taganrok. Its fish are small, but plentiful; so that 60,000 are often taken at one draught. This sea seems to be gradually filling up with the alluvial earth brought down by the Don; and, during violent east winds, the waters are driven so far back, where it is from thirteen to fourteen miles broad, as to allow a passage over the sand from Jagan Rock to the opposite coast. But when the wind changes the water flows back with such rapidity, that many of those who have attempted to cross this temporary route are overwhelmed by the returning tide. The deepest soundings are from thirty-five to forty feet. The whole surface, except a portion towards the centre, freezes during about a month in winter. A new island, at some distance from the shore, was thrown up on the 5th of September, 1799, with phenomena evidently volcanic.

AZOGA Ships, are those Spanish ships commonly called the quicksilver ships, from their carrying quicksilver to the Spanish West Indies, to extract the silver out of the mines of Mexico and Peru. These ships are prohibited to carry any goods except for the king of Spain.

AZOGUES, a town of Quito, South America, ten miles north-east of Cuenza.

AZOLO. See Acelum.

AZONI; from *α* privative, and *ζονη*, country; in mythology, a term anciently applied to such of the gods as were not the private divinities of any particular country, but were acknowledged in every country, and worshipped by every nation. They were superior to the gods called zonæi, who were supposed to inhabit particular parts of the world, and never to stir out of the district or zone that was assigned them. Such in Egypt were Serapis, Osiris, and Bacchus; and in Greece, the Sun, Mars, the Moon and Pluto. They were called by the Romans dii communes.

AZOOPHAGUS; from *α*, *ζωον*, animal, and *φαγω*, to eat; in natural history, a term used by authors to express such insects or animals as feed on herbs, never eating the flesh of any living creature.

AZORES, or Western Islands, a group of islands in the Atlantic Ocean, situated between the thirty-seventh and fortieth degrees of latitude, and about 800 miles from the western shore of Portugal. The name is said to have been given to them on their first discovery by the Portuguese, from Acor, a falcon, on account of the numerous goshawks which they found there. They have also sometimes been called Terceras, from the principal island. The Azores still belong to the crown of Portugal, and are considered as forming three separate clusters. St. Mary and St. Michael lie at the eastern extremity; the five islands of Tercera, Graciosa, St. George, Pico, and Fayal, form a central group; while Corvo and Flores are more detached, and lie farther north-west. The geographers of Arabia, in the middle ages, appear to have had some knowledge of these islands; but they were not known to Europeans till towards the middle of the fifteenth century, when Vander Berg, a Flemish merchant, being driven by contrary winds on these shores, and intelligence of the event reaching the court of Lisbon, an expedition was fitted out to take possession of them. The Flemings took possession of Fayal, where traces of them are still visible. When Portugal became subject to the Spanish yoke in 1580, these islands fell under Spanish control till the duke of Braganza was raised to the throne in 1640. They were now for a long period much neglected by the home government; but their situation being most salubrious, and highly favorable to commerce, they encreased and prospered spontaneously. Towns and cities were founded, and the population rose to between 200,000 and 300,000.

The first Portuguese minister whose wisdom was directed to the fostering of these islands was Pombal; 'he taught the Azoreans that they might become a people, and Portugal that she might cease to be a despot. During his mission, the islands were improved by his authority, adorned by his munificence, and extolled by his praise.' But the liberal administration of Pombal was succeeded by a sullen and bigoted ministry, composed of the most furious churchmen. A cabinet so formed, soon destroyed the foundations of the rising prosperity which had been laid during the former administration. The islands were inundated with bigoted ecclesiastics; a circumstance which was attended by the destruction of commerce, the extinction of arts and sciences, and the consequent introduction of indigence and barbarity. 'All the islands,' says a late historian, who had resided in the country, 'are under the religious dominion of a sordid and luxurious priesthood, and subject to the civil control of a licentious military power; to a government which condemns the country to a perpetual state of ignorance and sloth, and which confines the whole of its intercourse with the civilised world to the banks of the Tagus, or the port of Lisbon. For the last hundred and fifty years, the peaceable islanders have had to withdraw their eyes from the rest of the world, from every general public care, and fix them steadily and perpetually on the court of Portugal.' Such is, and such has long been the gloomy and miserable state of political degradation in which the Azores are sunk. The spirit of the people has been palsied by the arbitrary measures of the government; yet they are described by those who have been resident among them, as an honest race, who prefer peace to conquest, and who seek distinction in industry rather than in arms; as 'an innocent people, who are as eminent in the humble vale of domestic life, as the hero in the stormy regions of blood and warfare.' Their whole happiness, however, consists in their domestic and personal comforts, for country they have none. They have no common principle of union; no common bond of action; they form a community not insensible to the ties of kindred, but uncemented by national feeling; a political blank in themselves, and comparatively useless to the parent state.' See History of the Azores, London, 1813.

In 1591 these islands were, for twelve successive days, shaken by violent concussions, and the Villa Franca entirely destroyed. A similar occurrence took place in 1757. There can

indeed be little doubt of their volcanic origin, and deep subterranean connexion with very active volcanoes. New islands have frequently been raised from the bottom of the sea, by the power of volcanic action. In 1720 one of these phenomena took place, on approaching which, the next day, an English captain observes, 'we made an island of fire and smoke; the ashes fell on our deck like hail and snow, the fire and smoke roared like thunder or great guns.' Another instance of this kind happened in 1811, near the western extremity of St. Michael, when flames were seen issuing from the sea, accompanied by volumes of smoke and showers of scoria and ashes. The rocks remained just below the surface, with the waves dashing violently over them, and soundings of 80 fathoms, were found almost close to the new island. The presence of subterraneous fire is also indicated by its effect on numerous springs throughout the islands. Some of these are so hot, that they burn the hand. These have of late been considerably resorted to as warm baths, which they answer the more conveniently, as a cold spring is always at hand. In other places, boiling fountains rise to a considerable height, and dissolve in vapor.

The Azores are discovered from a great distance, by a high mountain called the Pico, or peak, bearing a strong resemblance to the peak of Teneriffe, and rising about 7000 feet above the level of the ocean. Their whole appearance is mountainous, but many delightful and fertile valleys separate the rounded and conical hills, of of which the greater part of their surface is composed. The islands are subject to violent winds, and the fury of the waves is sometimes injurious to the low grounds near the sea. Wheat, barley, Indian corn, and valuable woods are produced; but their chief produce is wine and fruits, both of which are exported in large quantities. The wine has some resemblance to Madeira, but is inferior in quality. The oranges are much esteemed.

The best vines are raised on the lofty sides of the Pico, from which wine is made, and exported through Fayal, by which name it is known. It is decidedly inferior to Madeira, but being 50 per cent. cheaper, obtains a considerable sale.

Pico exports a fine species of wood, little inferior to mahogany. The trade was formerly cramped, by being carried on through the medium of Portugal; but, since the emigration of the court, the inhabitants have begun to traffic directly with England and America; a circumstance that has much invigorated this commerce.

Angra, the chief town of Terceras, is the seat of government: but Pentá del Gada, or the city of St. Michael, is the largest town of the islands, and the seat of the bishop and principal ecclesiastical authorities.

AZORES is also the name of a small group of islands of the Atlantic, north of St. Domingo.

AZORIUM, in old law Latin, azure.

AZOTE; from *α*, privative, and *ζαω*, I live; a name given by the French chemists to a species of air which is destructive of animal life; not fitted for respiration, it is also incapable of supporting combustion. It is said to form about four-fifths of our atmosphere; but being there mixed with the remaining fifth of another air, having properties the reverse of its own, it becomes suited to our existence. See GAS NITROGEN.

AZOTH, in ancient chemistry, the first matter of metals, or the mercury of a metal; more particularly that which alchemists call the mercury of philosophers which they pretended to draw from all sorts of metallic bodies.

AZOTH is also a name given to the philosopher's stone. When the Arabs began to study chemistry, their metaphorical and hieroglyphical manner of writing seems to have given rise to a practice of calling the means made use of for bringing metals to perfection, by the name of medicines, and imperfect metals by the name of sick men, and gold by that of a sound and lively person. Hence it was supposed, that these were to be understood literally, especially upon finding the impurities of the baser metals called by the name of leprosies; and hence rose the opinion, that the imperfect metals might be turned into gold, and the bodies of such men into sound ones, by the same preparation!

AZOTH, AZOTUS, or ASHDOD, one of the five cities of the Philistines, and a celebrated sea-port on the Mediterranean, situated about fourteen or fifteen miles south of Ekron, between that and Ascalon. It was in this city that the idol Dagon fell down before the ark; and so strong a place was it, if we may believe Herodotus, that it sustained a siege of twenty-nine years by Psammiticus king of Egypt. It was, however, taken by the Maccabees in a much shorter time; who burnt both city and temple, and with them about 8000 men. The town is now called by the Arabs Hasaneyun. It is but thinly inhabited, though the situation is very pleasant. With regard to the houses, those that were built in the time of christianity, and which are now inhabited by Mahommedans, still preserve some claim to admiration; but the modern buildings, though generally of stone, have nothing in them which can attract the notice of a traveller. The streets are pretty broad, the inhabitants mostly Mahommedans, with a few christians of the Greek communion, who have a church under the jurisdiction of the archbishop of Gaza. The town is about a mile and a half in circumference; and has in it a mosque, a public bath, a market-place, and two inns. The number of the inhabitants is between 2000 and 3000. The most remarkable things in this place are an old structure with fine marble pillars, which the inhabitants say was the house that Sampson pulled down; and to the south-east, just out of the town, the water in which the Ethiopian eunuch was baptized by the evangelist Philip. There are several ancient buildings with capitals and pillars standing.

AZPEYTIA, a town of Spain, in the province of Biscay, canton of Guipuscoa, on the river Urola. To this place belongs the village of Loyola, once the property of the celebrated father Ignatius Loyola, founder of the order of Jesuits.

AZPILCUETA (Martin), surnamed Navarre, was born at Verasoa, near Pampeluna, in Spain, in 1494. He was professor of law in several uni-

versities, and died at Rome in 1586. His works were printed at Lyons, in 6 vols. folio, 1597.

AZRAH-BEN-AREN, a town of the Arabian Irak, situated on the river Tigris, fifteen miles N.N.W. of Korna.

AZUA, a small town on the south side of the island of St. Domingo, seated on a deep bay.

AZUBAH, the daughter of Shilhi and mother of king Jehoshaphat.

AZUELA, a large river of South America, in the kingdom of Quito, which enters the Amazons.

AZUL, a river of Mexico, in the country of the Appaches, which enters the Gila.

Azul, Rio, or the Blue River, a river of North America, in California.

AZUM, a port of Abyssinia on the Red Sea.

Az'ure, Az'ured, Az'urn. Fr. *azur*; Ital. *azurro*; from the Arabic *hazul*, the name of a stone brilliantly blue, but not transparent; sky-colored blue.

And on his shield enueloped seuenfold,
He bore a crowned little ermilin,
That deckt the *azure* field with her faire pouldred skin.
Spenser's Faerie Queene, book iii. c. 2.

By whose aid
(Weak masters though ye be) I have bedimm'd
The noon-tide sun, call'd forth the mutinous winds,
And 'twixt the green sea and the *azured* vault
Set roaring war. *Shakspeare. Tempest.*

His spear
He walkt with, to support uneasie steps
Over the burning marle, not like those steps
On heaven's *azure*. *Milton. Paradise Lost.*

By the rushy fringed bank,
Where grows the willow, and the osier dank,
My sliding chariot stays,
Thick set with agate, and the *azurn* sheen
Of turkis blue, and emerald green,
That in the channel strays. *Id. Comus.*

As when the moon, refulgent lamp of night,
O'er heaven's clear *azure* spreads her sacred light;
When not a breath disturbs the deep serene,
And not a cloud o'ercasts the solemn scene:
Around her throne the vivid planets roll,
And stars unnumbered gild the glowing pole.
Pope. Homer's Iliad.

How many bright
And splendid lamps shine in heaven's temple high,
Day hath his golden sun, her moon the night,
Her fix'd and wand'ring stars the *azure* sky.
Fairfax's Trans. Tasso's Jerus. Deliv.

Azure Stone. Azure, among painters, which at present signifies a fine blue color resembling that of the sky, was formerly appropriated to lapis lazuli; which is thus defined: Lustre glistening: fine grained, uneven fracture. It scratches glass, but scarcely strikes fire with steel. Opaque, or translucent on the very edges. Easily broken. Specific gravity 2·85. In a very strong heat it intumesces, and melts into a yellowish black mass. After calcination it forms a jelly with acids. By a late and most interesting research of MM. Clement and Desormes, it appears to be composed of thirty-four silica, thirty-three alumina, three sulphur, and twenty-two soda. (Ann. de Chimie, tom. 57.) In this analysis, however, a loss of eight per cent. was experienced. These chemists consider the above ingredients essential, and the 2·4 of lime, and 1·5 of iron, which they have occasionally met with, as accidental. The best specimens are from China, Persia, and Great Bucharia. They are made red-hot in the fire, and thrown into water to render them pulverisable. They are then reduced to a fine powder, and intimately combined with a varnish, formed of resin, wax, and boiled linseed oil. This pasty mixture is put into a linen cloth, and repeatedly kneaded with hot water: the first water, which is usually dirty, is thrown away; the second gives a blue of the first quality; and the third yields one of less value. The process is founded on the property which the coloring matter of azure-stone has of adhering less firmly to the resinous cement, than the foreign matter with which it is associated. When azure-stone has its color altered by a moderate heat, it is reckoned bad. MM. Clement and Desormes consider the extraction of ultramarine as a species of saponification.

Azure, in heraldry, the blue color in the arms of any person below the rank of a baron. In the escutcheon of a nobleman, it is called sapphire; and in that of a sovereign prince, Jupiter. In engraving, this color is expressed by lines or strokes drawn horizontally. M. Upton and his followers rank this color before gules. This color may signify justice, perseverance, and vigilance; but according to G. Leigh, when it is compounded with

Or, Arg., Gul.	it signifies	Cheerfulness. Vigilance. Readiness.
Ver., Pur., Sab.	it signifies	Enterprise. Goodness. Mournfulness.

AZUREA, in entomology, a species of phryganea, with black wings, violet behind. Linn. The lower wings are obliquely violet. It inhabits the north of Europe. Also, in zoology, a species of lacerta that inhabits Africa.

AZUREUS, in entomology, a species of carabus, of an azure color, with red legs and antennæ. It inhabits Leipsic. Fabricius. 2. A species of cimex, of a middle size; dull green color; and yellowish mouth and legs. Inhabiting Guinea. The abdomen is yellowish, with black dots in the middle.

AZURIN, in ornithology, a name assigned by Buffon, Hist. Ois. to the species of turdus, since called specifically cyanurus by Gmelin.

AZURITE, in mineralogy, a blue substance, which occurs principally in Styria. Its crystalline form, as well as some other of its other characters, distinguish it from lazulite, or, as it is more commonly termed, lapis lazuli, of which at its first discovery, it was regarded as a variety.

AZYGOS, in anatomy, a vein rising within the thorax, on the right side, having no fellow on the left; whence it is called *αζυγος*, or vena sine pari. See Anatomy.

AZYMA, or Azymes; from *α* negative, and *ζυμη*, ferment; the feast of unleavened bread among the Jews.

AZYME. Gr. *αζυμος*, without ferment; *α*, the privative, and *ζυμη*, ferment.

They had (they said, i. e. the translators of King James's Bible), on the one side, avoided the scrupulosity of the puritanes, who left the old ecclesiastical

words and betook them to other, as when they put washing for baptism, and congregation for church; and on the other hand, had shunned the obscuritie of the papists in their *azmes*, tunike, rational, holocausts, prepuce, pasche, and a number of such like, whereof their late translation was full, and that of purpose to darken the sense, that since they must needs translate the Bible, yet by the language thereof it might be kept from being understood.

Preface to King James's Bible.

AZYME, or AZYMUS, a term much used in the controversies between the Greek and Roman church; the latter of whom contend, that the bread in the mass ought to be azymus, unleavened, in imitation of the paschal bread of the Jews, and of our Saviour, who instituted the sacrament on the day of the passover. In the council of Florence it was decreed, that the point lay at the discretion of the church; and that either leavened or unleavened bread might be used. The Lutheran church uses unleavened bread to this day; and a respectable modern commentator says:—'If any respect should be paid to the primitive institution, in the celebration of this divine ordinance, then unleavened, unyeasted, bread should be used. In every sign or type, the thing signifying or pointing out that which is beyond itself, should either have certain properties, or be accompanied with certain circumstances, as expressive as possible, of the thing signified. Bread, simply considered in itself, may be an emblem apt enough of the body of our Lord Jesus, which was given for us; but the design of God was evidently that it should not only point out this, but also the disposition required in those who should celebrate both the antetype and the type; and this the apostle explains to be sincerity and truth (1 Cor. v. 6—8), the reverse of malice and wickedness. The very taste of the bread was instructive; it pointed out to every communicant, that he who came to the table of God with malice or ill-will against any soul of man, or with wickedness, a profligate or sinful life, might expect to eat and drink judgment to himself, as not discerning that the Lord's body was sacrificed for this very purpose, that all sin might be destroyed, and that sincerity, εἰλικρινεια, such purity as the clearest light can discern no stain in, might be diffused through the whole soul; and that truth, the law of righteousness and true holiness, might regulate and guide all the actions of life'.—*Dr. Adam Clarke on the New Testament.*

AZYMITES, in church history, christians who administer the eucharist with unleavened bread. This appellation is given to the Latin church by the Greek, because the members of the former use fermented bread in the celebration of the eucharist. They also call the Arminians and Maronites by the same name, and for the same reason.

AZYMOUS, something unfermented, or made without leaven, as unleavened bread. Sea biscuit is of this kind; and therefore, according to Galen, less wholesome than bread that has been fermented.

AZZALUM, in the ancient physiology, a species of iron, reputed the most excellent of all, supposed to have been brought from India, whence it was called Indicum; but, in reality, according to some, brought from China.

AZZO (Portius), an Italian lawyer, was a native of Bologna, where he was chosen professor of jurisprudence in 1190 He wrote a work held in great estimation, entitled, A Summary of the Code and the Institutes. He died about 1220.

B.

B, the second letter of the English and most other alphabets. It is the first consonant, and first mute, and its pronunciation is supposed to resemble the bleating of a sheep.

B is also one of those letters which the eastern grammarians call *labial*, because the principal organs employed in its pronunciation are the lips. It is pronounced by pressing the whole length of them together, and forcing them open with a strong breath. It has a near affinity with the other labials P and V, and is often used for P, both by the Armenians and other Orientals, as in *Betrus* for *Petrus*, *apsens* for *absens*, &c.; and by the Romans for V, as *amabit* for *amavit*, *berna* for *verna*

As a numeral, B was used by the Greeks and Hebrews to denote 2; but among the Romans for 300, and with a dash over it (thus B) for 3000.

B, is also an abbreviation. See ABBREVIATION.

In music B stands for the tone above A; as B^{b}, or ^{b}B, does for B flat, or the semitone major above. A B also stands for bass; and B C for *basso continuo*, or thorough bass.

BA, a small sea-port town of Africa on the Slave coast, where the Dutch have a factory.

BA, a river of Scotland, in Argyleshire.

BAA-BA, *v. n.* } Lat. *balo*, to cry like a
BAA. *s.* } sheep. The bleating of a sheep.

Therefore thou art a sheep;
Such another proof would make me cry *baa*.

Shakspeare.

BAADSTED, or BATSTED, a sea-port town in the province of Schonen, Sweden, situated in a bay of the Cattegat, ten miles north of Engelholm, sixteen south of Helmstadt. Long. 12° 45′ E., lat. 56° 28′ N.

BAAGOE, two small islands in the Baltic belonging to the crown of Denmark, the one lying between the islands of Zealand, Moen, and Fal-

ster. Long. 12° 3′ E., lat. 54° 56′ N. And the other in the Little Belt, lon. 9° 49′ E., lat. 55° 19′. N.

BAAL, [בעל, Lord, Syr.] Bel, or Belus; an idol of the Chaldeans, and Phœnicians, or Canaanites. The former worshipped Mars under this name, according to Josephus: who, speaking of Thurus, the successor of Ninus, says, 'To this Mars, the Assyrians erected the first statue, and worshipped him as a god, calling him Baal.' It is probable from what is recorded, 2 Kings xxiii, 5, 11, that the Phœnicians worshipped the sun under the name of Baal. The temples consecrated to this god are called in scripture Chamanim, which signifies places enclosed with walls, in which was kept a perpetual fire. Maundrel, in his journey from Aleppo to Jerusalem, observed some traces of these enclosures in Syria. As the word baal, in the Punic language, signifies lord or master, it doubtless meant the supreme Deity, the Lord and Master of the universe. It is often joined with the name of some false god, as Baal-berith, Baal-peor, Baal-zephon, &c. This deity passed from the Phœnicians to the Carthaginians, who were a colony of Phœnicians; as appears from the Carthaginian names, Hannibal, Asdrubal, &c. according to the custom of the east, where kings and great men added to their own names those of their gods. This deity is also frequently mentioned in Scripture in the plural number, Baalim: which may signify, either that the name Baal was given to several different gods; or that there were many statues bearing different appellations, consecrated to this idol. Arnobius tells us, that Baal was of an uncertain sex; and that his votaries, when they called upon him, invoked him thus; 'Hear us, whether thou art a god or a goddess.' Some learned men think that the Baal of the Phœnicians is the Saturn of the Greeks; which is probable from the conformity there is between the human sacrifices offered to Saturn, and those which the scripture tells us were offered to Baal. Others are of opinion, that Baal was the Phœnician, or Tyrian Hercules; a god of great antiquity in Phœnicia.

Baal. See Baalath-beer.

BAALAH. 1. A city transferred from the tribe of Judah to the Simeonites. 2. The original name of Kirjath-jearim, in Judah.

BAALATH, a city in the tribe of Dan.

BAALATH-BEER, or Baal, a city of the Simeonites, on the south-west border.

BAAL-BECK, or the Valley of Baal, a fertile country of Asia, between Lebanon and Antilibanus, about thirty miles from Damascus; where there was formerly a magnificent temple of the sun, the ruins of which are still visible. Some geographers make it a part, and others the whole of Cœlo Syria; but all agree that it was one of the most pleasant spots on the earth. The ruins of the temple are still admired. See Balbec.

BAAL-BERITH, the god of the Shechemites. Bochart conjectures that Berith is the same as Beroe, the daughter of Venus and Adonis, who was given in marriage to Bacchus; and that she gave her name to the city of Berith, in Phœnicia, and became afterwards the goddess of it. Baal-berith signifies Lord of the covenant, and may be taken for the god who presides over alliances and oaths, in like manner as the Greeks had their Ζευσορκιος, and the Romans their Deus Fidius, or Jupiter Pistius. The idolatrous Israelites made Baal-berith their god. Judges viii. 33.

BAAL-GAD, Bagad, or Begad, in ancient mythology, an idol of the Syrians, whose name was composed of baal, lord, and gad, chance or fortune; the god of chance or fortune. After the god of thunder, the god of chance was one of the first worshipped by mankind.

BAAL-HAMON, a place where Solomon had a vineyard, and where probably he sacrificed to Baal, in his dotage, to please his idolatrous wives.

BAAL-HANAN, the son of Achbor, and the seventh king of the Edomites. From his name it appears probable that the worship of Baal had at that early period taken place among the descendants of Esau.

BAAL-HAZOR, a city near Ephraim, about eight miles north-east of Jerusalem, between Bethel and Jericho. In this city Absalom held his treacherous festival for murdering his brother Amnon.

BAAL-HERMON, a part of Mount Hermon.

BAALIM, in antiquity, inferior deities among the Phœnicians. See Baal.

BAALIS, a king of the Ammonites, who sent Ishmael, the son of Nethaniah, to murder the brave Gedaliah, the viceroy appointed by Nebuchadnezzar over the remnant of the Jews, whom he had left in Jerusalem. (Jer. xl. 17.) For this he was justly punished by Nebuchadnezzar, who soon after invaded his country, and reduced it to a desert.

BAAL-MEON, Beon, or Bethbaal-Meon, a city of Canaan, which was taken from the Amorites and given to the Reubenites. (Num. xxxii. 38.) It was afterwards taken by the Moabites, and at last destroyed by the Chaldeans. It had been rebuilt, however, for it was inhabited in the time of the Maccabees.

BAAL-PEOR, Baal-phegor, or Bel-phegor, an idol of the Moabites and Midianites. We are told, that Israel joined himself to Baal-peor, and that Solomon erected an altar to this idol upon the Mount of Olives. Baal-peor has been supposed a Priapus, and that the worship of him consisted in the most obscene practices. Others have thought that as Baal is a general name signifying Lord, Peor may be the name of some great prince deified after his death. Mede supposes, that Peor being the name of a mountain in the country of Moab, on which the temple of Baal was built, Baal-peor may be only another name of that deity, taken from the situation of his temple; as Jupiter is styled Olympus, from his temple built on Mount Olympus. Selden, who is of this opinion, conjectures likewise, that Baal-peor is the same with Pluto; which he grounds upon these words of the Psalmist, Psal. cvi. 'They joined themselves unto Baal-peor, and eat the offerings of the dead;' though by the offerings of the dead, in this passage, may be only meant sacrifices made to idols, who are very properly called the dead, in contradistinction to the true, who is justly and emphatically styled the living, God.

BAAL-PERAZIM, a place in the valley of

Rephaim, about three miles south-west of Jerusalem, where David routed the Philistines.

BAAL'S-BAY, and BAAL'S RIVER, a bay and river in West Greenland, situated between Bear's Sound and Delft's Point, opposite Hudson's Strait.

BAAL-SHALISHA, a place belonging to Samaria, probably near Gilgal, the birth place of a prophet, whose name is not recorded, who, in a time of famine, miraculously fed 100 men with twenty barley loaves. See 2 Kings iv. 42, 44.

BAAL-TAMAR, a place near Gibeah, where the tribe of Benjamin was almost extirpated by the other eleven tribes. See Judg. xx. 33.

BAALTIS, a goddess among the Phœnicians. Some suppose that she was the same with the Diana of the Greeks.

BAAL-ZEBUB, BEEL-ZEBUB, or BELZEBUB, [בעלזבוב, i.e. the lord of flies,] the idol, or god of the Ekronites In Scripture he is called the Prince of Devils. His name, the God-fly, some think was a mock appellation bestowed on him by the Jews. But this seems not very probable, as his worshipper, Ahaziah, called him by this name. Perhaps Beelzebub was characterised like the god Achor, who was worshipped at Cyrene, as the preserver from flies. He had a famous temple and oracle at Ekron. Ahaziah, king of Israel, being dangerously hurt, sent to this deity to enquire if he should be cured. The Jews accuse our Saviour of driving out devils in the name of Beelzebub, their prince. Scaliger derives the name of this deity from Baalim-zebahim, which signifies the lord of sacrifices.

BAAL-ZEPHON is mentioned in Exodus xiv. 2, as opposite to Pihahiroth, during the peregrinations of the Israelites in the wilderness; but whether it was a fortified place, built to guard the frontier of Egypt, at the north point of the Red Sea, or an idol erected in that station, commentators are not agreed. Perhaps both parties may be right. An idol of Baal might be set up in the fort, which would naturally take its name from the deity.

BAAN (John d'), a Dutch portrait painter, born in 1633, and died in 1702. He resided some time in England, under the patronage of Charles II. His son James, who died in 1700, at the age of twenty-seven, was little inferior to his father in portrait painting, and superior to him in some other branches.

BAANITES, the followers of one Baanes, who adopted and disseminated the Manichean notions in the early part of the ninth century.

BAAR, mountains in the duchy of Wirtemburgh, which are a part of that long range called Abenow, or Abnoba.

BAARAS, BAHARAS, or BACHARAS, an extraordinary kind of root, said to grow in the valley of Baaras, near Mount Lebanon, whence the name. By the account which Josephus gives, it seems to be a sort of vegetable phosphorus; for he represents it as of a flame color, emitting rays of light in the night, and disappearing by day.

BAARD, in old records, a transport ship.

BAART (Peter), a Dutch poet of the eighteenth century, author of 'Georgics,' describing the rural pleasures and occuptaions of his countrymen, and of a poem entitled the 'Triton of Friesland.'

BAASHA בעשא, Heb. i.e. pressing together, the son of Ahijah, and the third king of Israel, after its separation from Judah; one of the many monarchs who have waded through blood to a throne. I Kings xv. and xvi. He died A. M. 3013, in the twenty-fourth year of his reign.

BAAT, in the language of the Siamese, answering to tical in that of the Chinese, denotes a weight and coin current in those kingdoms, and weighs about half an ounce.

BABA, a town, district, and river of South America, in the province of Guayaquil, and kingdom of Quito. The district is twenty-two leagues in extent; it abounds in cacoa; and its population amounts to 4000 souls.

BABA, an impostor, who appeared among the Turks in 1240. He maintained that there is but one God, and that he was his messenger. He drew considerable attention, and with a number of followers overran Natolia. His success, however, was short-lived, for he was defeated, and his sect sunk into obscurity.

BABA-DAGI, or BABA-TAGH, see BABATAGH.

BABAHOYO, a town, district, and river of South America, in the province of Guayaquil, and kingdom of Quito, in lat. 1° 47′ S. There is a custom-house and royal arsenal in the town, which is a great mart for trade. The district is extremely level and fertile, and abounds in cattle. Cotton, rice, soap, tobacco, cocoa, and fruits are the principal exports.

BABANON, or BALBANON, a town of the kingdom of Cambodia, on the river Cambodia. Long. 105° 10′ E. lat., 12° 17′ N.

BABA-TAGH, a large town in the district of Silistria, in European Turkey, situated between two mountains. It has a college, five mosques, and 10,000 inhabitants. Here have generally been the head quarters of the Grand Vizier's army in the wars between Turkey and Russia. Báyazìd I. peopled it with a Tartarian colony, and its name (Saint's Hill) is derived from the tomb of Sarì Saltic Bey, a celebrated Tartarian saint, buried on one of the neighbouring mountains. This mountain-pass was the Dérè (the neck) of the Greeks. Ptolemy places it in lat. 11°.

BAB-BAHA, one of the richest districts of Abyssinia, according to Mr. Bruce, about twelve miles from the river Baha, and near the lake Tzana. This on the south, and Woggora on the north, are the two granaries that supply the rest of the kingdom. It contains a number of small villages; in which the queen and many of her relations have their houses and possessions. These are all surrounded with kolquall trees, as large in the trunk as those of the province of Tigré, but less beautiful.

BAB'BLE, *v.* & *n. s.*, BAB'LER, *n. s.*, BAB'BLING, *a.* & *n.*, BAB'BLEMENT. *n. s.* Germ. *babbelen*; Fr. *babiller*. Probably receives its origin from the tower of Babel, when the confusion of tongues took place, and marks a superfluous and improper use of speech. To talk without reflection and without meaning, noisy repetition; to betray secrets; to talk much

with unintelligible rapidity. Babbling, among hunters, is when the hounds are too busy after they have found a good scent. It is used figuratively to indicate mere senseless sounds.

He told me meryly, yt logicke he reckoned but *babblinge* musicke to serue for singers.
Sir Thomas More's Works.

John had conned over a catalogue of hard words; these he used to *babble* indifferently in all companies.
Arbuthnot.

The apostle had no sooner proposed it to the masters at Athens, but he himself was ridiculed as a *babbler*.
Rogers.

This is mere moral *babble*.
Milton.

Deluded all this while with ragged notions and *babblements*, while the expected worthy and delightful knowledge.
Id.

With volleys of eternal *babble*
And clamour more unanswerable.
Hudibras.

To stand up and *babble* to a crowd in an alehouse till silence is commanded by the stroke of a hammer, is as low an ambition as can taint the human mind.
Hawkesworth.

Utterers of secrets be from thence debarred
Babblers of folly.
Faerie Queene.

We hold our time too precious, to be spent
With such a *babbler*.
Shakspeare.

The *babbling* echo mocks the hounds.
Id.

The *babbling* echo had descried his face.
Addison.

There at the foot of yonder nodding beech,
That wreathes its old fantastic root so high,
His listless length at noontide would he stretch,
And pore upon the brook that *babbles* by.
Gray.

BA'BE, *n. s.* } Welsh *bahan*; Dutch *babbaerd*; Ital. *bambino*; an in-
BA'BY, *n. s.* } fant; a child of either sex in
BA'BISH, *ad.* } its earliest stage of being.
BA'BERY. *n. s.* } Childish, belonging to infancy, applied to dolls and images and playthings, the playthings of children, and the finery that pleases them.

Who all that piteous storie which befell
About the woefull couple which were slaine,
And theire young bloodie *babe* to him gan tell
With whom whiles he did in the wood remaine
His horse purloyned was by subtille traine.
Faerie Queene.

Those that do teach your *babes*
Do it with gentle means, and easy tasks.
Shakspeare.

Come, poor *babe*:
I have heard, (but not believed,) the spirits of the dead,
May walk again: if such thing be, thy mother
Appear'd to me last night; for ne'er was dream
So like awaking.
Id.

Command my best obedience to the queen,
If she dares trust me with her little *babe*,
I'll show't the king.
Id.

The *baby* beats the nurse, and quite athwart
Goes all decorum.
Id.

Sweet *babes!* who like the little playful fawns,
Were wont to trip along these verdant lawns.
Lyttleton.

The archduke saw that Perkin would prove a runnagate; and it was the part of children to fall out about *babies*.
Bacon.

If he be bashful and will soon blush;
They call him a *babish* and ill brought up thing.
Ascham.

So have I seen trim books
With golden leaves and painted *babery*,
Of silly boys, please unacquainted sight.
Sidney.

BABEL, a city and tower undertaken to be built by the whole human race soon after the flood, and remarkable for the miraculous frustration of the attempt by the confusion of languages. See BABYLON.

BABEL, a town of Egypt, in the Delta, supposed by D'Anville to be the ancient Byblos. It is forty miles north of Cairo.

BABEL (St.), a small town of France, in Auvergne, department of the Puy de Dome, eight miles north-east of Issoire, thirteen east of Brioude.

BAB-EL-MANDEB, or BABELMANDEL, literally the gate of affliction, a promontory and strait at the southern extremity of the Red Sea, about seven leagues broad; the strait forming the communication between that sea and the Indian Ocean. There is a mountain or island in the middle of the strait, sometimes called El Mandel, as well as Perim or Mehun, which divides the strait into two parts, of which the eastern, though narrowest, is most frequented, as it has deep water, and is free from shoals. 'It is at most three geographical miles in width,' says Bruce, 'and has twenty or thirty fathoms water.' lord Valentia and Niebuhr make the breadth of the strait between Perim and the Asiatic shore the same as Bruce; between it and the coast there are from fifteen to twenty English miles. His lordship observes, that 'Perim should be kept close on the larboard side, in order to avoid a deep bay to the eastward of the cape, which has been sometimes mistaken for the strait.' The wider or western channel is much obstructed by rocks and small islands. The Arabian cape is in lat. 12° 40′ N., long. 43° 33′ E. Niebuhr's Reisebeschreibung, i. 448. Bruce's Travels, i. 361. Lord Valentia's Travels, ii. 13. Vincent's Periplus, i. 111. The island is said to be about five miles in circumference, barren and scarcely inhabited.

BABEN, an island in the Indian Sea, about eighteen miles long, by six in breadth, surrounded by some smaller ones. Long. 130° 131′ E., lat. 7° 41′ S.

BABENHAUSEN, a market town in the circle of the Iller, Bavaria, with two castles, a Latin school, and 1600 inhabitants. It is sixteen miles S. E. of Ulm, twenty-six W. S. W. of Augsburg.

BABGAUM, a town of Hindostan, in Dowlatabad, twenty-two miles north of Poonah.

BABI, a small island near the west coast of Ceram, in the Eastern Seas. Long. 128° 3′ E., lat. 3° 5′ S.

BABIC, or BARABEG, a town of Persia, situated in a fertile, uncultivated plain, towards the north-west of the province of Kerman. It has formerly been a fine city, but is now falling into decay. Here are, however, four gates, from each of which long streets lead to the market-place in the centre, and the dome over the market-place, which is esteemed the largest in Persia, is in complete preservation. Babic being at an equal distance from the cities of Kerman, Shiraz, and Yezd, was in former times a great mart of commerce, the greater part of the merchandise which was sent to the port of Gombroon, on the Persian gulf, passing through it

A lieutenant-governor resides here, under the control of the prince governing Kerman. The avenues to the town are planted with fruit-trees, and the gardens are said still to surpass those of both Shiraz and Ispahan in beauty and taste. Fruit of every kind is in such profusion as to have given occasion to the saying, that 'if all Persia, except this district, were a desert, Shuhre Babic would supply it with fruit.'

BABILIUS, an astrologer in the time of Nero, who advised the emperor to put all the leading men of Rome to death, that he might avert the danger which seemed to hang over his head, from the appearance of a hairy comet. Nero strictly followed this advice.

BABILLO, a river of South America, in the kingdom of Granada, which falls into the Madalena.

BABINGLEY, a village in the county of Norfolk, two miles north-east from Castle Rising, is only remarkable as being the place in which the first Christian church in East Anglia was erected. Some hills in the vicinity are said to be called Christian hills from this event.

BABINGTON (Gervase), bishop of Worcester, was born in Nottinghamshire; and sent to Trinity College, Cambridge, of which he was made fellow; and in 1578 was incorporated A. M. at Oxford. He, however, made Cambridge the place of his residence, where he became an eminent preacher; and being now D. D. was made domestic chaplain to Henry, earl of Pembroke. In 1588 he was installed prebend of Hereford, and in 1591 bishop of Landaff. In 1594 he was translated to the see of Exeter, and thence to Worcester in 1597. About this time he was made queen's counsel for the marches of Wales. He was a considerable benefactor to the library of the cathedral of Worcester, where he was buried in May 1610. Historians agree that he was a learned and pious man, but his writings, like those of most of his contemporaries, abound with puns and quaint expressions. His works were printed both in folio and quarto in 1615 and 1637.

BABINGTON (Anthony), one of the sufferers in the cause of the unfortunate Mary, queen of Scotland. He was born of a good family in Derbyshire, and inherited a plentiful fortune. Having distinguished himself by his learning and talents, he was recommended by the archbishop of Glasgow to the queen; and being naturally of an ardent temper, he resolved to devote himself to her service. Accordingly, he not only entered into the scheme of an enthusiastic priest named Ballard, for dethroning Elizabeth, but when one Savage undertook to assassinate the English queen, he agreed in the design, and engaged five other gentlemen as accomplices. But, after their design was ripe for execution, Polly, one of the associates, discovered the whole to Walsingham, secretary of state; and they were arrested, condemned, and executed, in 1586.

BABŒUF (Francis Noel), an active man in the French revolution. From a footman he had risen to a lawyer's clerk, and afterwards became attorney. When the revolution commenced, he assumed the name of Gracchus, and engaged in conducting an incendiary journal, entitled The Tribune of the People; but his concern in a conspiracy being discovered, he was condemned to be guillotined, and the execution was only prevented by his killing himself in prison, in 1797.

BABOLISA, called also BABOLITZNA CARETHNA, a town of Hungary, or rather of Sclavonia, seated near the river Drave.

BABOLSCA, or BABOLZA, a market town of Hungary, in the county of Shumeg and circle of Canischa. It was formerly fortified, and from the middle of the sixteenth to the end of the seventeenth century, alternately in the possession of the Turks and Imperialists. It is now inhabited by Croats, and is twenty-two miles S.S.E. of Canischa.

BABOON, in zoology, the name of that tribe of apes (simia, Linnæus) which have short tails, comprehending the species apedia, sphinx, mormon, maimon, and porcaria. They have very muscular bodies. In the English language baboon has the same application as babouin in the French, of which many accounts have been given by Buffon, Sonnini, and others. Virey observes, that they are a ferocious and very lascivious kind of ape, found in many parts of the old world, and especially in Africa. Their muzzle, he remarks, is a little lengthened in the same manner as that of a dog, and on that account they have sometimes been called synges cyanocephales, and also maggots. They live on fruits, seeds, roots, leaves, insects, &c. In a state of captivity they are altogether untameable, are fond of wine and spirituous liquors; and the females, it is asserted, have an antipathy to the fair sex, as the males have against men. See SIMIA.

BABOUIN A MUSEAU DE CHIEN, of Sonnini (edit. Buffon), in zoology, the simia hymadryas, Linnæus; and dog-faced ape, Pennant.

BABOUR (Sultan), the founder of the Mogul dynasty in Hindostan, was descended from the great Timor, or Tamerlane, and was sovereign of Cabul. While engaged in an expedition against Samarcand, he was deprived of his hereditary dominions, and reduced to the utmost extremity by the Usbecks. But on recovering his fortunes, he invaded Hindostan, and in 1525 overthrew and killed sultan Ibrahim, the last Hindoo emperor of the Patan or Afghan race, and firmly established himself on the throne. He died in 1530. Ferishta, a Persian historian of Hindostan, informs us, that this prince wrote an elegant history of his own life, and is noted as the first Indian sovereign who had the roads he travelled measured after him.

BABRAHAM, formerly BADBURHAM, a small place in the county of Cambridge, four miles north-west of Linton. The manor of this place was formerly in the possession of Sir Horatio Pallavicini, collector of the Pope's dues in the reign of queen Mary; and who, on Elizabeth's accession, detained the money he had gathered. Lord Orford, in his Anecdotes of Painting, cites the following epitaph on him, from Sir John Crew:—

Here lies Horatio Palavazene,
Who robbed the Pope to lend the queene.
He was a thiefe—a thiefe; thou lyest:
For what? he robbed but Antichrist.
Hym Death with besom swept from BAB'RAM
Into the bosom of old Abraham;
But then came Hercules with his club
And struck him down to Belzebub.

Sir Horatio was one of the commanders against the Spanish Armada, and his portrait is preserved in the tapestry of the House of Lords. The register of this parish records the marriage of his widow with Sir Oliver Cromwell, the Protector's uncle.

BABREA, a mountainous district in the province of Gujrat, situated on the peninsula between the Gulfs of Cambay and Cutch. It contains many strong holds and various small rivers, which flow into the Gulf of Cambay. Here is the famous fortress of Chitpour and the temple of Diu. It is subject to the Mahrattas.

BABU, a small island in the Gulf of Siam, near Cambodia. Long. 103° 48′ E., lat. 9° 42′ N.

BABUAN, a small island, said to be about twenty-five miles in circumference, which is the most northerly of the Philippines. Long. 122° E., lat. 19° 43′ N.

BABUYANES ISLES, a number of islands off the north coast of Luzon, the principal Philippine, between the nineteenth and twentieth degrees of north latitude. The largest are named Babuan, Calayay, Dalupiri, Camiguen, and Fuga, and are from twenty to thirty miles each in circumference. Besides these, there are many small rocky islets. Although so far north, the Babuyanes isles are much infested by the piratical cruisers of Magindarao. Their productions are wax, ebony, bananas, cocoas, and plantains.

BABU'L-ALWAB. See DERBEND.

BA'BU'L-BAWA'DI (Gates of the Deserts), or Mahrah, a province on the south coast of Arabia, so named from its being the southern entrance to the great central deserts. See MAHRAH.

BABYLON.

BABYLON, Heb. BABEL, in ancient geography, the capital of Babylonia or Chaldea, supposed to have been situated in N. lat. 33°, E. long. 42° 46′ 30″; or, according to the observations of M. Beauchamp (Mem. Ac. Sc. Paris, 1787), N. lat. 32° 34′, and E. long. 44° 12′ 30″ upon the river Euphrates, and considered for many ages the wonder of the world. The few vestiges that yet remain of its ancient ruins are placed by most geographical writers, at a town called Hilla or Elugo, about fifteen leagues south-west of Bagdad. It was on or near the site of this city, that the descendants of Noah, according to the Hebrew text, 101 years after the flood; or 531, according to the Septuagint, began to build a city and tower, the top of which should reach to heaven; an impious attempt, which ended in the confusion of their language, and their dispersion over the face of the whole earth. See Genesis, xi. 1—9. That before this period all mankind spoke one language cannot be thought incredible, or even improbable; for since the family of Noah, the only one in the world, are known to have dwelt together, we cannot suppose that any material change could have been effected in their language during a single century, or even the period assigned by the Septuagint calculation. Besides which, numerous histories and traditions still current in Asia, though dashed with superstition and fable, allude to the same events: all tending to confirm, in the most unequivocal manner, the main strokes and outlines of the Mosaic narrative. Josephus ascribes the building of the tower to Nimrod (See Bochart's Phaleg. i. 10.), whose name is also affixed to some of the remains of Babylon. Abydenus (as quoted by Eusebius, Præpar. Evangel. ix. 14.), observes, that the first men, contemning the power and authority of the gods, and relying on their own extraordinary strength, built a lofty tower, which nearly reached the sky, in the place where Babel then stood. But the winds coming to the assistance of the gods, overturned the whole mass upon the heads of its builders, and from its ruins Babylon was afterwards built. The gods also at the same time caused mankind, who had before all spoken the same language, to speak henceforward in different tongues. Plato also, (Polit. p. 272. ed Steph.), relates a similar tradition, wherein he says, that in the golden age, one common language was spoken both by men and beasts, but that Jupiter confounded their tongues as a punishment for their insolence in claiming eternal youth and immutability. After the confusion of languages, the people 'left off to build the city', says Moses; but they must afterwards have resumed it, for in the next verse he adds, that the name of it was called Babel, which signifies confusion, alluding to the confusion in the languages of its builders. It is afterwards mentioned as the chief city of the kingdom of Nimrod, the son of Cush, from which period no further account is given of it in the sacred writings, till the captivity of Israel under Nebuchadnezzar, 730 years before the commencement of the Christian era, when it was so heightened and improved as to be called 'great Babylon,' 'the glory of kingdoms,' 'the beauty of the Chaldees' excellency,' 'the golden city,' 'the lady of kingdoms.' See the prophets Isaiah, Jeremiah, and Daniel. The Greeks have nevertheless, supplied this 1515 years interval of silence, and have given a complete history of the Assyrian and Babylonian empires, together with a magnificent sketch of their renowned metropolis in the zenith of its glory under Semiramis, Nebuchadnezzar, and others. The learned Bochart connects the sacred and profane histories together, by supposing the city of Babylon, and the tower of Belus, mentioned by the Greek historians, to be the same as those related by Moses.

Babylon, according to the concurrent testimony of the ancients, was seated on a plain (the plain of Shinar in Scripture), and surrounded by

water. The places about Babylon, as Abydenus informs us, from Megasthenes, (Euseb Præp. Evang. l. ix. c. 41. p. 41. p. 457.), are said from the beginning to have been overwhelmed with waters, and therefore called the sea; according to the language of Isaiah, xxi. 1. 'the burden of the desert of the sea.' Jeremiah calls the city itself a mountain, li. 25, on account of the great height of its walls, towers, palaces, and temples, which, according to Berosus, as quoted by Josephus (ubi infra), resembled mountains. The founding of this metropolis is attributed by some historians to Semiramis, by others to Belus, who is thought by many to have been the same with Nimrod already alluded to, but was indebted for its chief improvements to Nebuchadnezzar, his son Evilmerodach, and his widow Nitocris. Nebuchadnezzar repaired, enlarged, and embellished it to such a degree, that he may be said to have built it, according to his own vain-glorious boast, Dan. iv. 30. Nor is this asserted only in Scripture, but likewise by heathen authors, Megasthenes, Berosus, and Abydenus. (See Josephus, Antiq. l. x. c. 11. sect. i. t. i. p. 536. ed. Haverc.) Eusebius, (Præp. Evangel. l. ix. c. 41. p. 457. ed. Vgeri.) The chief works of Babylon, mentioned by historians, were the prodigious walls of the city, the temple of Belus, Nebuchadnezzar's palace, the hanging gardens, the bank of the river, the artificial lake, and the canals.

This city was surrounded with walls, in thickness eighty-seven feet, in height 350, and in compass 480 furlongs, or sixty of our miles; according to Herodotus, who was himself at Babylon; and most writers give us the same dimensions. Diodorous Siculus, however, diminishes the circumference of these walls very considerably, and takes somewhat from the height of them; though he seems to add to their breadth, by saying, that six chariots might drive abreast thereon; while Herodotus writes, that one chariot only might turn upon them; but then he places buildings on each side of the top of these walls, which, according to him, were but one story high; which may pretty well reconcile them together. Those, who give the height of these walls but at fifty cubits, speak of them only as they were after the time of Darius Hystaspis, who had caused them to be beaten down to that level. The ground plan of these walls formed an exact square, each side of which was 120 furlongs, or fifteen miles, in length; and they were all built of large bricks cemented together with bitumen, which in a short time grows harder than the brick and stone which it cements. Without the walls, the city was encompassed with a vast ditch, filled with water, and lined with bricks on both sides; and, as the earth that was dug out of it served to make the bricks, we may judge of the depth and largeness of the ditch from the height and thickness of the walls. In the whole compass of the wall there were 100 gates, that is, twenty-five on each of the four sides, all of solid brass. Between every two of these gates, at proper distances, were three towers; four more at the four corners of this great square, and three between each of these corners and the next gate on either side; and each of these towers was ten feet higher than the walls, in those parts where towers were needful for defence. For some parts of the walls, being upon a morass, and inaccessible by an enemy, they stood in no need of towers. Thus the whole number of these towers amounted to more than 250. From the twenty-five gates in each side of this square, there was a straight street, extending to the corresponding gate in the opposite wall; whence the whole number of the streets must have been but fifty; but they were each about fifteen miles long, twenty-five of them crossing the other twenty-five exactly at right angles. Besides these whole streets, we must reckon four half streets, which were but rows of houses facing the four inner sides of the walls. These four half streets were properly the four sides of the city within the walls, and were each of them 200 feet broad, the whole streets being about 150 of the same. By this intersection of the fifty streets, the city was divided into 676 squares, each of four furlongs and an half on each side, or two miles and a quarter in compass. Round these squares on every side towards the streets stood the houses, all three or four stories in height, beautified with all manner of ornaments: and the space within each of these squares was void, or taken up by gardens, &c. A branch of the Euphrates divided the city into two, running through the midst of it, from north to south, over which, in the middle of the city, was a bridge, a furlong in length, or, as some say, no less than five furlongs, though but thirty feet broad. At each end of this bridge were two palaces; the old palace on the east side, the new one on the west side of the river; the former of which took up four of the squares, and the latter nine. The temple of Belus, which stood next to the old palace, took up another of the squares. That part or half of the city on the east side of the river was the old town, and the other on the west was added by Nebuchadnezzar; both being included within the vast square bounded by the walls. It is supposed, that Nebuchadnezzar, who had destroyed the old seat of the Assyrian empire, Nineveh, proposed that this new one should rather exceed it; and that it was in order to fill it with inhabitants that he transported such numbers of the captives from other countries hither. But notwithstanding his great conquests it was never wholly inhabited; for, Cyrus removing the seat of the empire soon after to Shushan, Babylon fell by degrees to decay. So far was it from being finished according to its original design, that, when Alexander came to Babylon, Q. Curtius tells us, 'no more than ninety furlongs of it were then built;' which can only be understood of so much in length; and, if we allow the breadth to be as much, no more than 8100 square furlongs were then built upon; but the whole space within the walls contained 14,400 square furlongs; and therefore there must have been 6300 square furlongs remaining unbuilt, which, Curtius tells us, were ploughed and sown. Besides this, the houses were not contiguous, but built with a void space on each side.

The next great work of Nebuchadnezzar was the temple of Belus. The wonderful tower, however, that stood in the middle of it, was not his work, but was built many ages before, being

the famous tower of Babel, as is commonly supposed. This is said to have been composed of eight pyramidal ones raised above one another, and is stated by Herodotus to have been a furlong in height; but as there is an ambiguity in his expression, it has been disputed whether each of the towers, was a furlong in length, or the whole of them taken together. Even on the latter supposition, it must have exceeded the highest of the Egyptian pyramids by 179 feet, though it fell short of its breadth at the basis by thirty-three. The way to go up was by stairs on the outside round it; whence it seems most likely that the whole ascent was, by the benching in, drawn by a sloping line from the bottom to the top eight times round it; and that this made the appearance of eight towers, one above the other. In these different compartments or stories were magnificent rooms, with arched roofs, supported by pillars, forming parts of the temple when the tower was consecrated, those of the uppermost story being thought most sacred. Over the entire top was an observatory. Diod. Sic. l. ii.; and Calisthenes, the philosopher who accompanied Alexander in the conquest of Babylon, found astronomical observations which carried up the account as high as the 115th year after the flood, or B. C. 2334, and fifteen years from the building of the tower of Babel. Till the times of Nebuchadnezzar, it is thought that this tower constituted the whole of the temple of Belus; but he made great additions, by vast edifices round it, in a square of two furlongs on every side, and a mile in circumference; thus exceeding the square of the temple of Jerusalem by 1800 feet. On the outside of these buildings was a wall, which enclosed the whole; and, from the regularity with which the city was marked out, it is supposed, that this wall was equal to the square wherein it stood, and so is concluded to have been two miles and an half in circumference. In this wall were several gates leading into the temple, all of solid brass. In the temple were several images of massy gold, one of them forty feet in height. The whole weight of its statues and decorations, according to Diodorus Siculus, amounted to above 5000 talents in gold, above twenty-one millions of our money: an equal sum in treasure, utensils, and ornaments, not mentioned, is allowed for.

Next to this temple, on the east side of the river, stood the old palace of the kings of Babylon, which was four miles in circumference, and exactly opposite to it, on the other side of the river, was the new one built by Nebuchadnezzar, eight miles in circumference. The tower or temple stood till the time of Xerxes. But that prince, on his return from the Grecian expedition, having first plundered it of its immense wealth, demolished the whole, and laid it in ruins. Alexander, on his return to Babylon from his Indian expedition, proposed to rebuild it, and make it the seat of his empire, and even employed 10,000 men to clear away the rubbish. But his death happening soon after, a stop was put to all further proceedings in that design.

Nothing was more wonderful at Babylon than the hanging gardens, which Nebuchadnezzar made in compliment to his wife Amyitis; who being a Mede, and retaining a strong inclination for the mountains and forests of her own country, was desirous of having something like them at Babylon. They are said to have contained a square of four plethra, or 400 feet, on each side; and to have consisted of terraces one above another, carried up to the height of the wall of the city, the ascent from terrace to terrace being by steps ten feet wide. The whole pile consisted of substantial arches upon arches, and was strengthened by a wall surrounding it on every side, twenty-two feet thick. The floors on each of them were laid in this order: first, on the tops of the arches was a pavement of stones sixteen feet long, and four feet broad; over this a layer of reeds, mixed with a great quantity of bitumen; over this were two courses of brick, closely cemented together with plaster; and over all these thick sheets of lead, and on these the earth or mould of the garden. Upon the uppermost of these terraces was a reservoir, supplied with water from the river. The other works attributed to Nebuchadnezzar by Berosus and Abydenus, were the banks of the river, the artificial canals, and the great artificial lake said to have been sunk by Semiramis. The canals were cut out on the east side of the Euphrates, to convey its waters, when it overflowed its banks, into the Tigris, before they reached Babylon. The lake was on the west side of Babylon; and, according to the lowest computation, forty miles square, 160 in compass, and in depth thirty-five feet, as Herodotus, or seventy-five, as Megasthenes will have it; the former, perhaps, measured from the surface of the sides, and the latter from the tops of the banks that were cast up upon them. This lake was dug to receive the waters of the river, while the banks were building on each side of it. But both the lake, and the canal which led to it, were preserved after that work was completed, being found of great use, not only to prevent all overflowings, but to keep water all the year, as a common reservoir, to be let out, on proper occasions, by sluices, for the improvement of the land. The banks were built of brick and bitumen, on both sides of the river, to keep it within its channel; and extended on each side throughout the whole length of the city, and even farther, according to some writers. Within the city they were built from the bottom of the river, and of the same thickness with the walls of the city itself. Opposite to each street, on either side of the river, was a brazen gate in the wall, with stairs leading down from it to the river: these gates were open by day, and shut by night. Berosus, Megasthenes, and Abydenus, attribute all these works to Nebuchadnezzar but Herodotus tells us, the bridge, the banks, and the lake, were the work of the queen Nitocris already alluded to, who may have finished what Nebuchadnezzar left imperfect. Such is the description ancient historians give of this city; which, if the accounts are not exaggerated, must have exceeded every specimen of human grandeur that has yet appeared. Many of the moderns, however, are of opinion that these descriptions are exaggerated; although it is certain that few other arguments can be brought against

the reality of them, than that we do not now see similar designs executed.

The taking of Babylon by Cyrus, as prophecied in the scriptures, forms one of the most striking and important events in the variable page of ancient history. War had commenced between the Medes and Persians, and Babylonians, in the reign of Neriglissar, and had been carried on with very bad success on the side of the last named people. Cyrus, who commanded the Median and Persian army, having subdued the several nations inhabiting the great continent from the Ægean sea to the Euphrates, bent his march towards Babylon. Nabonadius, hearing of it, immediately advanced against him. In the engagement which ensued, the Babylonians were defeated; and the king, retreating to his metropolis, was blocked up and closely besieged by Cyrus. But the reduction of the city was no common enterprise. Its walls and towers were well manned, and the place stored with all provisions for twenty years. Cyrus, despairing of being able to take it by storm, caused a line of circumvallation to be drawn quite round it, with a large and deep ditch; reckoning, that if all communication with the country were cut off, the besieged would be obliged to surrender through famine. That his troops might not be too much fatigued, he divided his army into twelve bodies, appointing each body its month to guard the trenches; but the besieged, looking upon themselves to be out of danger, insulted him from the ramparts, and despised all his efforts. Cyrus having spent two whole years before Babylon, without making any progress in the siege, at last thought of the following stratagem, which put him in possession of it. He was informed that a great annual solemnity was to be held at Babylon; and that the inhabitants on that occasion were accustomed to spend the whole night in revelry. On this night he accordingly sent a strong detachment to the head of the canal leading to the great lake, with orders at a certain time, to break down the bank which was between the lake and the canal, and to turn the whole current into the lake. At the same time he appointed one body of troops at the place where the river entered the city, and another where it came out; ordering them to march in by the bed of the river as soon as they should find it fordable. Towards the evening he opened the head of the trenches on both sides of the river above the city, that the water might discharge itself into them; by which means, and the breaking down of the great dam, the river was soon drained. Then the two bodies of troops entered the channel; the one commanded by Gobryas and the other by Gadates: and finding the gates left open, they penetrated into the heart of the city without opposition. Those who were in the palace opening the gates to know the cause of this confusion, the Persians rushed in, took the palace, and killed the king as he came out to meet them. Cyrus took possession of Babylon, in the name of his uncle Cyaxares II. called in scripture Darius the Mede: A. M. 3468.

The manner in which this city was taken is remarkable, from its coincidence with the prophecy of that event in Isa. xlv. 1, 2. 'The two-leaved gates' were literally opened before him, and the gates were 'not to be shut,' &c. On these prophecies, see bishop Newton, bishop Lowth on Isaiah, &c.

With Babylon fell the empire of Babylonia according to the striking language written on the wall of the palace the same night in which the city was taken, and interpreted by the prophet Daniel; 'Mene, God hath numbered thy kingdom and finished it.' See Dan. ch. v.

The history of the ruins of this great city is all which we have now to present to the reader. An insurrection, under Darius Hystaspes, B. C. 500, provoked that prince to overthrow the walls and gates which had been left by Cyrus. We also learn from a fragment of Diodorus Siculus, produced by Valesius, and from him quoted by Vitringa, Comment. in Jesaiam, ch. xiii. vol. 1, p. 421, that one of the kings of Parthia sent many of the Babylonians, under the most trivial pretences, into slavery; burnt the forum, together with some of the temples; and demolished the best parts of the city, B. C. 130 years. Diodorus Siculus, l. ii. asserts, that in his time, B. C. 44, only a small part of it was inhabited, and that the greater part of the space within the ancient walls was tilled. Strabo, who wrote fourteen years after him, in his l. xvi. p. 1073, applies to Babylon what a comic poet, said of Megalpolis in Arcadia: 'The great city is now become a great desert,' Pliny, H. N. l. 6. ch. xxx., published A. D. 66, affirms that it was reduced to solitude by the neighbourhood of Seleucia. Pausanias, A. D. 153, says, Arcad. ch. xxxiii. p. 668. ed. Kuhuii, 'that of Babylon, the greatest city the sun ever saw, nothing remained but the walls.' Maximus Tyrius, Diss. 6, and Lucian, Επιον, sive Contemplantes, mention it as a neglected place; the latter intimating that in a little time it would be sought for and not be found, like Nineveh. Eusebius has preserved an oration of Constantine the great, in which that emperor states, that he himself was upon the spot, and beheld the desolate and miserable condition of the city. St. Jerome informs us, that about the close of the fourth century, it was converted into a chase to keep wild beasts in, for the diversion of the Persian kings, that all was in the utmost state of desolation, except the brick walls, which were occasionally repaired to prevent the animals from escaping; a circumstance which literally fulfilled the prophecy of Isaiah xiii. 21. Hieron, Comment. on Isa. ch. xiii. ch. xiv. vol. 3. p. 111. 115. ed. Benedict. Benjamin of Teudela, who lived in the twelfth century, affirms, Itin. p. 66, that some ruins were still to be seen of Nebuchadnezzar's palace, into which travellers were afraid to enter on account of the serpents and scorpions that inhabited the interior. Texeira, a Portuguese, is cited by Bochart, and Prideaux, as giving a similar account of this place; various other travellers have further confirmed them. Tavernier says, that at the division of the Tigris, a short distance from Bagdad, is the foundation of a city which, from its appearance, may have been a league in compass; of which some of the walls yet standing occupy sufficient breadth to allow six coaches to pass upon them abreast, and are composed of burnt bricks ten feet square and three

feet thick. This place is represented by the chronicles of the country as the seat of ancient Babylon. Hanway says, Trav. vol. 4. pt. 3. ch. xx. p. 78, that the ruins of Babylon lie fifteen leagues south of Bagdad, and are now so much effaced by time, that scarcely any vestiges of them remain to point out the original situation of the city. Niebuhr, who lived in the eighteenth century, gave a description which has thrown a light upon the question respecting the original site of Babylon. But the most complete and satisfactory account is given by Mr. Rich, who resided for some time at the court of the Pasha of Bagdad, on the part of the East India Company, and possessed greater advantages for such an inquiry than any of his predecessors. He expected, he says, to have found on the site of Babylon both more and less than he actually met with; more, because he supposed he should have been able to have identified some of the ancient buildings, which was quite impossible; 'less because he could form no conception of the prodigious extent of the whole mass of ruins, their size, solidity, and the perfect state of some of their parts.'

The traces of the city begin to show themselves near Mohaeril, a khan or inn, nine miles from Hillah, and nearly thirteen leagues south of Bagdad; the whole country round exhibiting here and there, detached masses of bricks and bitumen. Three mounds attract particular attention by reason of their extraordinary magnitude. Hillah, in lat. 32° 28′ N., stands east of the Euphrates, and on that side also, with the exception of two small elevations, and one very considerable ruin, are all the remains of any antiquity. Two miles above Hillah commences a mound or enclosure of circular appearance, thought to have been the ancient boundary wall. It includes an area of two miles and a half one way, and one mile and one third the other. On the east side two straight dykes or walls of earth run from north to south, parallel with the Euphrates, and forming, together with the river and the ends of the enclosure above-mentioned, an oblong area, containing three principal mounds of rubbish, which rise more than 100 feet above the level of the river. The largest mass of these ruins, called by the Arabs Makallebah, pronounced by the natives Majellibéh, in English *subverted*, is what Rennell and Petro della Valle thought to be the tower of Belus. The figure is oblong, and the sides which face the cardinal points measure as follows: the northern side 200 yards, the southern 219, the western 136, and the eastern 192; the highest elevation is 141 feet. On the south-east angle appeared something like a turret, and in the rubbish were found whole bricks, having on them inscriptions in CUNEATIC CHARACTERS, for which see.

The next important ruin is called by the Arabs El Kair, the castle, a mile to the south of the former; consisting of walls and piers, eight feet in thickness, facing, like the former, the cardinal points. It is adorned with buttresses, pilasters, and niches of fine burnt brick, laid in lime mortar of extraordinary tenacity. Beneath this building are subterranean caverns and passages, which are still unexplored. In the neighbourhood is an atheleh, *tamarix articulata*, considered by the natives to have been coeval with the city. Mr. Rich also found another curious ruin, west of the river, and about six miles south-west of Hillah, which he coincides with Niebuhr Reisse, ii. 289, in considering as the celebrated tower of Belus; especially as the Arabs call it Birs Nemrùd, the tower of Nimrod. (The word birs, which embarrassed Mr. Rich, being nothing else than the Persian word borz, as Gesenius has justly expressed it.) This celebrated remain, which the Jews denominate the prison of Nebuchadnezzar, forms a mound of fine burnt bricks, with inscriptions on them; it is of oblong figure, 762 yards in circumference, and on the east side about sixty feet in height; but rises on the west in a conical form to the height of 198 feet, the base occupying a breadth of 28.

No works of art yet discovered in these ruins have been thought beautiful; but bricks and gems, with inscriptions and sculptures similar to those brought from Persepolis, evince the early connexion between the Babylonian and Persian empires. The inscriptions on the lower side of the bricks were buried in a substratum of mortar, and not designed to be seen or read; whence it has been inferred, that they are charms or magical formulæ to protect the building from the attack of demons and evil spirits. For a further illustration of this subject we refer the reader to Gesenius, in Ersch's Encyclo.; Rich's Memoir on the Ruins of Babylon, 1818; Maurice's Observations on ditto, 1816; and the numerous other works already quoted.

BABYLONIA.

BABYLONIA, or CHALDEA, a renowned kingdom of Asia, said to have been the most ancient in the world, lying between thirty and thirty-five degrees of north latitude, and bounded, according to Ptolemy, on the north by Mesopotamia, on the east by the Tigris, on the west by Arabia Deserta, and on the south by the Persian Gulf and part of Arabia Felix. Babylonia was founded by Nimrod, the grandson of Ham, who is also said to have built Nineveh, the ancient capital of Assyria. Various have been the conjectures of the learned respecting these two kingdoms; some supposing them to have been the same, others imagining that Babylonia was an early province of Assyria, although it is plain from the best authorities, that they remained perfectly distinct till the time of Ninus; who having conquered the former, reduced it to a tributary dependance upon the latter; in which state it continued till the effeminate reign of Sardanapalus; as did also Media, Persia, Egypt and other kingdoms At length Arbaces, governor of Media, taking advantage of that monarch's indolence, threw off his allegiance by the advice

of Belesis, a Chaldean priest; the Babylonians followed the example, and with the assistance of the Persians, and other allies to whom the tyranny of their Assyrian lords was equally odious, attacked the empire on all sides, and after a determined and obstinate perseverance, overthrew the Assyrian army, besieged Sardanapalus in his capital, and made themselves masters of the empire, A. A. C. 821.

The whole territory was then divided into three kingdoms, viz. the Assyrian, Median, and Babylonian. Arbaces retaining the supreme authority, fixed his imperial residence at Ecbatana, in Media; nominated Belesis to the government of Babylon, and Phul to that of Assyria; at the same time conferring upon them the title of kings. Phul, who reigned during the time of Menahem, king of Judah, re-established and greatly enlarged the Assyrian empire; and at his death bequeathed the kingdoms of Assyria and Babylonia to his two sons, the former to Tiglath-Pileser, the latter to Nabonasser, in the year B. C. 747.

From this period to the year 625, B. C. when Nabopolasser began his reign, nothing remarkable occurs in the history of Babylon, except that Assaradinus, or Esarhaddon, brother and successor of Senacherib, king of Assyria, took possession of that kingdom, B. C. 680; and that upon his death, B. C. 668, the kingdoms were again separated. The Scripture mentions only five Assyrian kings, viz. Pul, Tiglath-Pileser, Shalmaneser, Sennacherib, and Esarhaddon. In the twentieth year of Nabopolasser, B. C. 606, in the reign of Chynalidan, the Sardanapalus of the Greeks, Nineveh was taken and destroyed, by the united armies of the Medes and Babylonians, under Cyaxares and Nabopolasser, when the seat of the empire was transferred to Babylon. This Nabopolasser, called also Nebuchadnezzar, was the father of the celebrated Nebuchadnezzar, whose history is so famous in the sacred writings, and who commenced his reign 604 years B. C. two years after the conquest of Nineveh. This prince raised the empire of Babylon to its highest pitch of glory, and spread his dominions over a wide extent of territory, stretching from Media on the north-east, beyond Egypt on the south-west, and comprehending the several kingdoms of Assyria, Persia, Syria, Phœnicia, Canaan, North Arabia, Idumea, and Egypt. After Nebuchadnezzar, little is known of Babylon, except the names of his successors, Evil-Merodach and his queen Nitocris, his son-in-law Neriglissar, Laborosoarchod, the son of the latter, and Nabonadius, the son of Evil-Merodach by Nitocris, Labynitus of Herodotus, and Belshazzar of Scripture, in whose reign the city of Babylon was broken up, and the empire extinguished by Cyrus the Persian, 538 years B. C. See Anc. Un. Hist. vol. iii. p. 367—437. Rollin's Anc. Hist. vol. ii. p. 1—153.

In the early ages of the world, Babylonia was known by the names of Shivar, or Shivaar, which appellation it seems to have retained in the time of Daniel. In the days of Abraham, a king of Shivar is mentioned called Amraphel, who under Chedarlaomer, king of Elam, or Persia, made war upon the Canaanites. The name of Babylon is supposed to have been derived from the tower of Babel, and that of Chaldæa from Chaldæans or Chasdim. Joseph Ant. l. i. c. 7. These names were not synonymous; Babylonia, properly intending the country more immediately in the neighbourhood of Babylon, and Chaldæa, the territory lying south of the former, and reaching downward as far as the Persian gulf. Both nevertheless are commonly employed as general names of the whole empire, and in that sense are taken indifferently for each other, Chaldæa being the name used in Scripture, and Babylonia the most common in profane authors. *Diodor. Sic.* l. ii. c. 11, 12. *Strabo*, l. xvi. sub. ivit.

The chief cities of Babylonia were Babylon, Vologsia or Vologesocerta, built by Vologesis, king of the Parthians, on the Euphrates, about the time of Vespasian; Barsita, thought to be the Borsippa of Strabo, sacred to Diana and Apollo, and called Borisippeni, from its being the habitation of a certain sect of the Chaldæans; Idiccara, on the Euphrates and the borders of Arabia Deserta; Coche, in the island of Mesene, formed by the Tigris, Saura, and Pombeditha, of which the situation is very uncertain.

The air of this country was for the most part salubrious and temperate, though occasionally subject to hot pestilential winds. The rains according to Herodotus, were seldom, the deficiency of which the inhabitants supplied, by inventing wheels and engines for watering the land, and also by cutting numerous canals by which the waters of the Euphrates and Tigris were carried in different directions, and diffused over the whole surface of the empire. The southern parts of Babylonia between the rivers, have been compared to the Delta of Egypt, in consequence of their natural and artificial islands, and from their lying under the same parallel of latitude. The region of Chaldæa between the mountains of Babylon and the Euphrates, is also well watered by lakes, rivers, and canals, which greatly refresh every part of the surface, and its produce, according to Herodotus, l. i. c. 193, is by this means rendered equal to a third part of Asia.

In short, it was one of the finest countries for corn in the world; and so luxuriant, that it commonly yielded a hundred times more than what was sown; and, in good years, it yielded three hundred times more than it received. The leaves of its wheat and barley were four inches broad. 'Though I know,' says Herodotus, 'that the millet and the sesame of that country grow to the size of trees, I will not describe them particularly, lest those who have not been at Babylonia should think my account fabulous.' They had no oil but what they made from Indian corn. For producing fig-trees, vines, and olives, it was not famous, but the country abounded with palm-trees, which grew spontaneously; and most of them bore fruit, of which the inhabitants made bread, wine, and honey. Some of them, as of other trees, the Greeks called male ones. They tied the fruit of the male to the trees which bore dates; that the mosquito, leaving the male, might cause the date to ripen, by penetrating it; for without that assistance it came not to maturity. Musquitoes breed in the male palms as in the wild

fig-trees. The great fertility of the soil was owing, in a great measure, to the inundations of the Euphrates and Tigris, in the months of June, July, and August, caused by the melting of the snow upon the mountains of Armenia. From the circumstance of its being low, flat, and well watered, this country abounded with willows, and was hence called the 'Valley of Willows,' as Prideaux (Con. pt. i. b. i. p. 105,) after Bochart corrects the text, Is. x. 5, 7. Israel, Ps. cxxxvii. 1, 2, sat down in their captivity by the rivers of Babylon, and hung their harps upon the willows.

To facilitate the purposes of commerce the Babylonians navigated the Euphrates, by means of small boats, nearly round, constructed like wicker baskets, which were covered with hides, and guided by two oars, or paddles. These boats had neither head nor stern; but, being of different sizes, were very useful for carrying their goods to Babylon; whence they returned by land, the strength of the current not allowing them to return by water

The inhabitants of this country were divided, not only into two great tribes, Babylonians and Chaldeans, properly so called, but into numerous inferior sects and divisions, three of which are said to have fed upon nothing but fish, dried in the sun, formed into paste, and afterwards baked in rolls as a substitute for bread.

Physicians are said to have been unknown in Babylonia, to supply the want of which they carried their sick into the public forum, to consult those who passed by on the nature and cure of their diseases. Every one who saw a sick person was obliged to go to him to inquire into his distemper, and tell him if he ever had the same himself, or if he knew any one that had, and how he was cured; together with such other inquiries as the sick person might be induced to propose. They embalmed their dead with honey; and in their mourning imitated the Egyptians.

The laws of marriage among the Babylonians were peculiar, and were celebrated by the ancient writers for their wisdom and utility. On what ground the reader will determine. When the girls were marriageable, they were ordered to meet in a certain place, where the young men likewise assembled. They were then sold by the public crier; but he first sold the most beautiful one; and then put up others to sale, according to their degrees of beauty. The rich Babylonians were emulous to carry off the finest women, who were sold to the highest bidders. But as the young men who were poor could not aspire to have fine women, they were content to take the more homely, with the money which was given with them, from the produce of the sale of the finest women! A father could not give his daughter in marriage as he pleased; nor was he who bought her allowed to take her home, without giving security that he would marry her But, after the sale, if the parties were not agreeable to each other, the law enjoined that the money should be restored. The inhabitants of any of their towns were permitted to marry wives at these auctions. Such were the early customs of the Babylonians. But they afterwards made a law, which prohibited the inhabitants of different towns to intermarry, and by which husbands were punished for treating their wives ill.

The Babylonians were not without considerable taste for the arts. Of their music and poetry we have certain records. They also excelled in architecture and sculpture; also in the arts of designing and casting metals. Their manufactories of rich embroideries, sumptuous vestments, magnificent carpets, and fine linen, were famous; and their purple constituted a considerable article of eastern commerce. They were naturally a commercial nation, for which their metropolis afforded peculiar advantages; seated, as it was, in the midst of the world, and having, by means of its two chief rivers, an easy access to the northern and western parts; and, by means of the Persian Gulf, to the western.

At first, it is said, the Babylonians worshipped only the sun and moon; but they soon multiplied their divinities. They deified Baal, Bel, or Belus, one of their kings, and Merodach-Baladan. They also worshipped Venus under the name of Myletta She and Belus were the principal deities of the Babylonians. The practice of sacrificing human victims is said to have been first introduced into the world by the Babylonians in the worship of these deities. They counted their day from sun-rise to sun-rise. They solemnised five days in the year with great magnificence, and almost the same ceremonies with which the Romans celebrated their Saturnalia; and the Babylonians, generally speaking, were very much addicted to judicial astrology. Their priests, who openly professed that art, were obliged to commit to writing all the events of the lives of their illustrious men; and on a fancied connexion between those events and the motions of the heavenly bodies, the principles of their art were founded. They pretended that some of their books, in which their historical transactions and revolutions were accurately compared with the courses of the stars, were thousands of years old. And although we may dispute this assertion of their astrologers, it is nevertheless, true that they had made a long system of observations; and that some of these were extant in the days of Aristotle, which were older than the Babylonish empire. See ASTRONOMY, Index.

The government of Babylon was despotic, and the succession hereditary. Their potentates assumed divine titles, and received divine honors, which shows the spirit and force of the Scripture comparison between Babylon and papal Rome. The officers by whom the affairs of government were administered, were both civil and military, and were divided into three classes. The first had the charge of virgins, and of their disposal in marriage. They were also to judge in cases of adultery, and all matters connected with the rights and institutes of matrimony. The second took cognizance of thefts; and the third of all other crimes. The chief officers of the king's household were the captains of the guard, who executed the commands of the sovereign. The prince of the eunuchs, who had the care of the youth of the palace; the prime minister, resembling the Turkish vizier, who sat in the king's gate to hear complaints and pass judgment;

and a master of the magicians, whose province it was to satisfy the king on all subjects that related to futurity.

Of the criminal laws of Babylon little is known, except that their punishments were cruel and capricious—as beheading, cutting to pieces, turning the house of the criminal into a dunghill, burning, &c. Such is the account commonly given by historians of this renowned and ancient monarchy, one of the four great empires of the earth, so frequently employed in the hand of Providence as a scourge to execute the divine threatenings upon surrounding nations. This, however, is but a general view, and for a more detailed description, we refer the reader to the authorities already quoted.

BABYLON is a term employed in the Scriptures, particularly in the first epistle of St. Peter, and the book of Revelation, to designate a great enemy to the Christian faith; and is generally applied, by Protestants, to the Roman Catholic church; which, from her pride, oppressive and persecuting spirit, but chiefly from her idolatry, bears great resemblance to Babylon. Whoever reads the sixth chapter of Baruch, and compares it with the history of the papal apostacy, will see the justice and force of the application. See also *Whitby's* Paraphrase, vol. ii. p. 661, and 753.

BABYLONIA CURA, in astrology, the art of casting nativities.

BABYLONIAN, BABYLONIUS, is used, in ancient writers, for an astrologer, or any thing relating to astrology.

BABYLONICA. See BABYLONICS.

BABYLONICA TEXTA, a rich sort of weavings, or hangings, denominated from the city of Babylon, where their practice of interweaving divers colors in the hangings first obtained. Hence also Babylonic garments, Babylonic skins, Babylonic carpets, housings, &c.

BABYLONICS, BABYLONICA, in literary history, a fragment of the ancient history of the world, ending at 267 years before Christ; and attributed to Berosus, a priest of Babylon, about the time of Alexander. The Babylonics are sometimes cited in ancient writers by the title of Chaldaics. They are generally consonant with Scripture, whence the author is usually supposed to have consulted the Jewish writers. Berosus speaks of an universal deluge, an ark, &c. He reckons ten generations between the first man and the deluge; and marks the duration of the several generations by saroi, or periods of 223 lunar months; which, reduced to years, differ not much from the chronology of Moses. Only a few imperfect extracts are now remaining of the work; preserved chiefly by Josephus and Syncellus. Annius of Viterbo, to supply the loss, forged a complete Berosus!

BABYLONII NUMERI, Babylonican numbers, or the computation of astrologers.

BABYROUSSA, in zoology, a synonyme of a species of sus. It is the horned hog of Grew; porcus indicus babyroussa dictus of Ray; and baby-roussa of Buffon. In the arrangement of the French naturalists, it belongs to the genus cochons and order pachydermes. See SUS.

BAC, or BACK, in brewing or distilling, a large flat tub, or vessel, wherein the wort is put to stand and cool. There is a branch of trade called back-making, for furnishing these vessels.

BAC, in navigation, is used for a praam, or ferry-boat. See BACK.

BACA, an ancient valley in Palestine. Some commentators suppose it to be the same with the valley of Rephaim, where the Jews, in journeying to their solemn festivals, stopped for refreshment, as it abounded with springs, and was well shaded with mulberry trees, which the name Baca signifies. See Psalm lxxxiv. 6.

BACA, or BAZA, a town of Spain, in Granada, situated in a valley called Hoya de Baza. It is encompassed with old walls, has a ruined castle, and a church, dedicated to the Virgin Mary. The land about it is well cultivated, and is fertile in wheat, wine, honey, hemp, and flax, being watered by the Guadalentin. It is thirty-five miles north-west of Almeira.

BACACUM, a town of the Nervii in Gallia Belgica; now Bavay, in Hainault.

BACAIM, or BAZAIM, a sea-port town of the Deccan of Hindostan, on the Malabar coast.

BACALAL, a lake of Mexico, in the province of Yucatan, forty miles long, and sixteen broad. It is thirty-six miles south-west of Valladolid.

BACANO, a lake of Italy, in the pope's territories, from which issues the river Varca.

BACANORA, a town of North America, in New Mexico, seated on the Hiagra.

BACANTIBI, in ecclesiastical history, wandering clerks, who strolled from church to church. The word seems formed by corruption from vacantivi.

BACASERAY, a considerable town in the peninsula of Crim Tartary. It was taken from the Turks by the Russians, in 1736. It is seventy miles south of Precop.

BACBAKIRI, in ornithology, the name by which le Merle á plastron noir de Ceylan of Buffon, is known at the Cape of Good Hope, because its note very clearly expresses the syllables bac-ba-ki-ri. It is the green-pye from Ceylon of Edwards; Ceylon thrush of Latham; and turdus Zeylonus of Linnæus.

BACCA, BERRY, in botany, is used to signify such fruits as consist of pericarpium full of juice and seeds, without any valves.

BACCÆ BERMUDIENSES, in the materia medica, the berries of the sapindus, or soap-berry tree.

BACCALARIA, in middle age writers, a kind of country farms, consisting of several manses.

BACCALARIA DOMINICARIA, BACCALARIA INDOMINICATA, were more particularly used for a farm belonging to the lord, and kept in his own hands.

BACCALAUREATE, BACCALAUREATUS, a bachelor's degree; the first degree in arts and sciences in an university. See next article.

BACCALAUREUS; Latin, from bacca lau-

rea, a bay berry; a bachelor in an university, so called because anciently their heads, at graduation, were adorned with a garland of bay berries.

BACCARACH, a town of Germany, in the lower Palatinate; formerly imperial and free, but now subject to Prussia. It is famous for excellent wine; and is situated on the east shore of the Rhine, thirty-eight miles south of Coblentz, and forty-eight north of Deux Ponts. This place is mentioned by historians in the twelfth century, and the customs formerly collected on the Rhine here were so productive, that it received the name of the golden toll. A spring, of an oily consistence, rising in the middle of the river near it, affects both the smell and color of the water to a considerable distance. The island of Heilesen, just below it, contains a monument, to be seen at low water, adorned with sculptures and inscriptions. It appears to have been an ancient altar of Bacchus; is still termed Bacchi ara, and is said to give the town its name. There are large slate quarries in the neighbourhood, and the town contains manufactures of powder and starch. Population about 1200. The town suffered much in the thirty years war. The count palatine formerly resided in the castle of Stalecke, near this town.

BACCARUM, in entomology, a species of acarus, found on gooseberries, currants, and other fruit-trees. Also a species of cimex, of a fulvous color. Inhabits Europe.

BACCASERY. See Bacaseray.

BA'CCATED, *adj.* Lat. *baccatus*, beset with pearls; having many berries.

Johnson from Dict.

BACCATUS, in botany, berried, or soft, like a berry; an epithet for a capsule, a drupe, a silique, and an aril, as Baccata capsula, a capsule with a fleshy coat. Baccata drupa, a drupe with a succulent coat, &c.

BACCHÆ, in antiquity, 1. the priestesses of Bacchus, who celebrated the mysteries of that god; 2. the ivy crowns or garlands worn by the priests of Bacchus, in offering sacrifices to him.

BAC'CHANAL, *n. s.* } From Lat. *bac-*
Bac'chanalian. *ad.* & *n. s.* } *chanalia.* The feasts and revels of Bacchus, the god of wine; a worshipper of Bacchus, or, in modern usage, a drunkard or riotous person.

Ha, my brave emperor! shall we dance now the Egyptian *bacchanals*, and celebrate our drink?

Shakspeare.

What wild fury was there, in the heathen *bacchanals*, which we have not seen equalled?

Decay of Piety.

Both extremes were banish'd from their walls;
Carthusian fasts, and fulsome *bacchanals*. *Pope.*

And now Childe Harolde was sore sick at heart,
And from his fellow *bacchanals* would flee. *Byron.*

BACCHANALIA, Bacchanals, religious feasts in honor of Bacchus, were celebrated with much solemnity among the ancients, particularly the Athenians, who even computed their years by them, till the commencement of the Olympiads. They are sometimes also called orgia, from the Greek οργη, fury; on account of the madness and enthusiasm wherewith the people appeared to be possessed at the time of their celebration. They were held in autumn, and took their rise from Egypt; whence, according to Diodorus, they were brought into Greece by Melampus. The form of the solemnity depended at Athens, on the archon, and was, at first, exceedingly simple; but, by degrees, it became encumbered with a number of ridiculous ceremonies, and attended with much dissoluteness and debauchery; insomuch, that the Romans grew ashamed of them, and suppressed them by a decree of the senate throughout all Italy. The women had a great share in these solemnities, which were said to have been instituted on their account; for a great number of them, according to the tradition, attended Bacchus to the conquest of the Indies, carrying in their hands the thyrsus (i. e. a little lance, covered with ivy and vine leaves), and singing his victories and triumphs. The ceremony was kept up after Bacchus's deification, under the title of Bacchanalia, and the women were installed priestesses thereof, under that of Bacchæ, or Bacchantes. These priestesses, at the time of the feast, ran through the streets, and over the mountains, covered with tiger's skins, their hair dishevelled, their thyrsus in one hand, and torches in the other, howling and shrieking, Evoi σαβοι! Evoi Βακχε! Iω Iακχε! or Iω Βακχε! Of the men, some represented Pan, others Silenus, others satyrs. Men and women met promiscuously at the feast, quite naked, except only that the vine leaves, and clusters of grapes, bound their heads and loins; here they danced and jumped tumultuously, and, with strange gesticulations, sung hymns to Bacchus, till, being weary and giddy, they fell. Livy has left us a particular account (xxxix. 8, &c.) of the enormities practised at these festivals, and which led to their suppression. There were two principal Bacchanalia held annually, viz.

Bacchanalia Dionysia, or Majora, the greater Bacchanalia, so called from one of Bacchus's names (see Bacchus), celebrated in the city about spring time; and

Bacchanalia Lenæa, or Minora, the lesser festival, celebrated in the open fields about autumn.

Bacchanalia signify also pictures, or basso relievos, whereon the feast is represented, consisting chiefly of dancing, nudities, and the like. There are antique Bacchanals, still seen on several ancient friezes. Those painted by Poussin are excellent.

BACCHANTES, priestesses to Bacchus.

BACCHARACH Wine, an excellent kind of wine, by many mistaken for Rhenish; but from which Portzius observes it differs in color, taste, flavor and strength. See Baccarach.

BACCHARIS, in botany, Ploughman's Spikenard: a genus of the polygamia superflua order, and syngenesia class of plants; ranking in the natural method under the forty-ninth order, compositæ discoides. The characters are: a naked receptacle, and hairy pappus; with a cylindrical imbricated calyx, and feminine florets mixed with the hermaphrodites. There are seven species, all natives of warm climates; of which the two following chiefly merit notice. 1. B. Halimifolia, or Virginia groundsel tree, a native of Virginia and other parts of North America. It grows about seven or eight feet high, with a crooked shrubbery stem; and flowers in October. 2. B.

Ivæfolia, or African tree groundsel, a native of the Cape of Good Hope, as well as of Peru and other warm parts of America.

Baccharis, in pharmacy, a sweet ointment used among the ancients, so called perhaps from the above plant being a principal ingredient in it.

BACCHI, in fabulous history, a kind of machines in the form of goats, said to have been used by Jupiter in his wars against the giants. Rudbeck describes two kinds of Bacchi, one made like the battering ram, wherewith Jupiter demolished the enemy's fortifications; the other contrived to cast fire, from whence the Greeks are conjectured to have framed their idea of the chimera.

BACCHIC, something relating to the ceremonies of Bacchus. The celebrated intaglio, called Michael Angelo's ring, is a representation of a Bacchic feast.

Bacchic Song is sometimes used for a chanson à boire, or composition to inspire jollity. But in a more proper sense, it is restrained to a dithyrambic ode or hymn.

BACCHICA, in botany, Hedera, or ivy.

BACCHINI (Benedict), a learned monk of the seventeenth century, was a native of Parma, and entered at the age of sixteen into the Benedictine monastery of Mount Cassino. He afterwards travelled as secretary to the abbot of Ferrara. At length he settled at Parma, and established a periodical journal, which he conducted for some years with learning and success: but his criticisms created enemies, who procured his banishment. He retreated to Modena, and resumed his journal under the patronage of the duke of Modena. He was also historiographer and librarian to the duke. He subsequently became abbot of a Benedictine monastery, and was also chosen professor of ecclesiastical history at Bologna, where he died in 1721, aged seventy. Bacchini was one of the most learned men of his time. His literary journal extends to nine vols. 4to.; besides which, he published De Sistrorum Figuris ac Differentia, Bononiæ, 1691, 4to.; De Ecclesiasticæ Hierarchiæ Originibus, Modenæ, 1703, &c. &c.

BACCHIS, or Balus, king of Corinth, succeeded his father Pruinnides, and reigned with such moderation and equity, that to commemorate him his successors were called Bacchidæ. The Bacchidæ afterwards becoming numerous, they chose one as president, with regal authority. This institution was, however, overturned by Cypselus making himself absolute.

BACCHIUS, a follower of Aristoxenus, supposed by Fabricius to have been tutor to the emperor Marcus Antoninus, and consequently to have lived about A. D. 140. He wrote in Greek a short introduction to music in dialogue, which Meibomius has published with a Latin translation.

Bacchius, in ancient poetry, a foot composed of a short syllable and two long ones; as ĕgēstās. It takes its name from the god Bacchus, because it frequently entered into the hymns composed in his honor. The Romans called it likewise ænotrius, tripodius, and saltans; and the Greeks Παριαμβος.

Bacchius and Bithus, two renowned gladiators of equal age and strength; whence the proverb, expressive of equality, Bithus contra Bacchium.

BACCHUS, in heathen mythology, the god of wine. He is seldom named in modern times, but as a sensual encourager of feast and jollity: he was regarded in a more respectable light by the ancients, who worshipped him in different countries under the appellations, in Egypt, of Osiris; in Mysia, Fanaces; in India, Dionysius; Liber, throughout the Roman dominions; Adoneus, in Arabia; and Pentheus, in Lucania. Mythologists furnish reasons for all these different names. The Greeks and the Romans ascribed to the Bacchus whom they worshipped, the several actions and attributes of the many divinities known by that name, and by other equivalent denominations in different countries. However, antiquity chiefly distinguished two gods under the title of Bacchus; the one of Egypt, the other of Thebes in Bœotia.

The Bacchus of Egypt was the son of Ammon, and considered as the same with Osiris. He was brought up at Nysa, a city of Arabia Felix, whence he acquired the name of Dionysius, or the god of Nysa; and was the conqueror of India. This Bacchus was one of the elder gods of Egypt, although, according to Sir Isaac Newton, he flourished but one generation before the Argonautic expedition. Bacchus, says Hermippus, was potent at sea, conquered eastward as far as India, returned in triumph, brought his army over the Hellespont, conquered Thrace, and left music, poetry, and dancing there.

Bacchus of Thebes was the son of Jupiter by Semele, the daughter of Cadmus, and ranked as the youngest of the Grecian deities. Diodorus Siculus tells us, that Orpheus first deified the son of Semele by the name of Bacchus, and appointed his ceremonies in Greece, to render the family of Cadmus, the grandfather of the Grecian Bacchus, illustrious. According to this author, it was the son of Semele who invented farces and theatres, and who first established a musical school, excepting from all military functions such musicians as discovered great abilities in their art: on which account, says the same author, musicians formed into companies have since frequently enjoyed great privileges. Pausanias, in his Attics, speaks of a place at Athens consecrated to Bacchus the singer: whence it should seem that Bacchus was regarded by the Athenians not only as the god of wine, but of song; and it must be owned, that his followers, in their cups, have not been uninclined to pay him service in this way. Indeed it is clear, that in none of the orgies, processions, and festivals, instituted by the ancients to the honor of this prince of bons-vivans, music was forgotten. We find not only that musicians, male and female, regaled him with the lyre, the flute and the song; but that he was accompanied by fawns and satyrs, playing upon timbrels, cymbals, bag-pipes, and horns; these Suidas calls his minstrels, and Strabo gives them the appellation of Bacchi, Sileni, Satyri, Bacchæ, Lenæ, Thyæ, &c. These representations have furnished subjects for the finest remains of ancient sculpture; and the most voluptuous passages of ancient poetry are descriptions of the orgies and festivals of Bacchus.

Bacchus, is represented on medals in the form of a boy or youth, an old man, or a female, as in figs. 1, 2, 3; he is mostly naked, as in fig. 4, where he stands under the shadow of a vine-branch, near an altar, at which the emperor Commodus is offering him divine honors.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Bacchus, in entomology, a large species of scarabæus, that inhabits the Cape of Good Hope. 2. A species of curculio. 3. A species of monoculus.

Bacchus, in ichthyology, a name given by some to the myxon, a fish of the mullet kind, remarkable for the red color of its lips, and the extremity of the covering of the gills. See Mugil.

BAC'CHUS-BOLE. See Botany.

BACCHYLIDES, a famous Greek poet, the nephew of Simonides, and the contemporary and rival of Pindar. Both sung the victories of Hiero at the public games. Besides Odes to athletic victors, he was the author of love verses, prosodies, dithyrambics, hymns, pæans, parthenia, or songs to be sung by a chorus of virgins at festivals, &c. The chronology of Eusebius places the birth of Bacchylides in the eighty-second Olympiad, about A. A. C. 450.

BACCI'FEROUS. See Botany.

BACCINA, or Baccinum, a basin to hold water to wash the hands, The holding the basin, or waiting at the basin, on the day of the king's coronation, was an ancient tenure in serjeantry.

BACCIO (Francisco Bartolomeo, or Bartelemi di S. Marco), a celebrated history and portrait painter, was born at Savignano near Florence, in 1469, and was a disciple of Roselli; but his principal knowledge in the art was derived from Da Vinci. He understood the true principles of design better than most masters of his time, and was also a considerable painter of perspective. Raphael, after he had quitted the school of Perugino, studied the art of uniting colors under him, as well as the rules of perspective. Some years after the departure of Raphael, Baccio visited Rome; and by the observations he made on the antiquities and the works of Raphael, which, by that time, were universally admired, he improved much, and manifested his abilities by a picture of St. Sebastian, which he finished at his return to Florence. This was so well designed, so naturally colored, and had so strong an expression of agony, that it was removed from the convent where it was exhibited, as it had made too strong an impression on the imaginations of many women. He is accounted the first inventor of the machine called a layman by the artists, and which is still in general use. Upon that he placed his draperies, to observe, with great exactness, their natural and their most elegant folds. A capital picture of the ascension, by Baccio, is in the Florentine collection. He died in 1517.

Baccio, or Baccius (Andrew), a celebrated physician of the sixteenth century, born at St. Elpideo. He practised physic at Rome with great reputation, and was first physician to pope Sixtus V. The most scarce and most valuable of his works are, 1. De Thermis. 2. De Naturali Vinorum Historia. 3. De Venenis et Antidotis. 4. De Gemmis ac Lapidibus pretiosis.

BACCI'VOROUS, *adj.* From *bacca*, a berry, and *voro*, to devour, Lat. Devouring berries.

BACCOFOE, in botany, a fruit like the banana, very common in Guinea, but whiter, thicker and shorter. The taste and smell are agreeable; and some pretend that on cutting it through transversely, there is the figure of a crucifix on each side of it. Phil. Trans. No. 108.

BACCULI. See Bacilli.

BACH, a town of Lower Hungary, in the county of Tolu, seated on the Danube.

Bach (John Sebastian), a celebrated musician, born at Eisnach in Germany in 1685. He was patronised by the duke of Saxe Weimer, who appointed him his musician in 1708; and at Dresden he gained a victory over a famous French organist, whose vanity led him to challenge all the German musicians. As an organist, he was thought equal to Handel, and the excellence of his compositions testify him to have been among the foremost in the science. He died in 1754.

Bach (Charles and John), sons of the above, were both very eminent as performers and composers of music. Charles lived at Hamburgh in 1773, and John was in England in 1763.

BACHA, a river of Asiatic Russia, which joins the Jenesei on the right.

Bacha, in ornithology, a species of falco, figured in the fifteenth plate of Le Vaillant's work on the birds of Africa. It is about the size of the common buzzard, and naturally belongs to that tribe of rapacious birds.

BACHAUMONT (Francois le Coigneux de), a French poet. He was counsellor to the parliament, but his love of ease and pleasure made him give up his post and renounce his profession. Contracting an intimacy with Chapelle, he was joined with him in writing A Journey to Montpelier, in which there is much vivacity displayed; besides which he wrote several other works, in a humorous style. He died at Paris in 1702, aged seventy-eight.

Bachaumont (Louis-Petit), a French writer, born at Paris, was author of Secret Memoirs towards a History of the Republic of Letters in France, thirty-six volumes, 12mo. and other works. He died in 1771.

BACHELIER (Nicholas), an eminent French sculptor and architect. He was a pupil of Michael Angelo, and ornamented the churches of Toulouse, his native city. He died about 1554.

BACH'ELOR, *n. s.* } This is a word of
BACH'ELORSHIP, *n. s.* } very uncertain etymology; it not being well known what was its original sense. Junius derives it from *βάκηλος*, a man of full stature but of effeminate and immature mind; Menage, from *bas chevalier*, a knight of the lowest rank; Spelman, from *baculus*, a staff; Cajas, from *buccella*, an allowance of provision. The most probable derivation seems to be, from *bacca laurús*, the berry of a laurel or bay; bachelors, being young, are of good hopes, like laurels in the berry. Dr. Lawrence observes, that Menage's etymology is much confirmed by the practice in our universities of calling a bachelor, Sir. In Latin, *baccalaureus*. The former of these words describes the person; the latter his condition. The more common acceptation is a man unmarried. Its secondary meaning is one who takes his first degree at the university in any profession; and its last and now obsolete sense, is a knight of the lowest order.

Shall I never see a *bachelor* of threescore again? *Shakspeare.*

When I said I would die a *bachelor*, I did not think I should live till I were married. *Id.*

Her mother, living yet, can testify,
She was the first fruit of my *bachelorship*. *Id.*

But he told the latter, that is to say, Mr. Spectator, he told the *bachelors* that their lives and actions had been so peculiar that he knew not by what name to call them. *Spectator.*

Being a boy, new *bachelor* of arts, I chanced to speak against the pope. *Ascham.*

I appear before your honour, in behalf of Martinus Scriblerus, *bachelor* of physic. *Mart. Scriblerus.*

BACHELOR, in ancient times, was a denomination given to those who had attained to knighthood, but had not a number of vassals sufficient to have their banner carried before them in the field of battle; or if they were of the order of bannerets were not of age to display their own banner, but obliged to march to battle under another's banner. It was also a title given to young cavaliers who, having made their first campaign, received the military girdle accordingly. And it served to denominate him that had overcome another in a tournament the first time he ever engaged.

BACHELOR, in the six companies of merchants at Paris, was a name given before the Revolution to the elders, and such as, having served the offices, had a right to be called by the masters and wardens to be present with them, and assist them in their functions.

BACHELORS, in the livery companies of London, are those who are not yet admitted to the livery. These companies generally consist of a master, two wardens, the livery, and the bachelors, who are yet but in expectation of dignity in the company, and have their functions only in attendance on the master and wardens. They are also called yeomen.

BACHELORS, in the university sense, are persons who have attained to the baccalaureats, or first degree in arts, divinity, law, or physic. This degree in some universities has no existence. It was first introduced in the thirteenth century by pope Gregory IX. The following regulations are observed respecting it in Oxford and Cambridge: In the university of Cambridge, a bachelor of arts must reside the greater part of twelve several terms, the first and last excepted. The statutable exercises before admission, ad respondendum quæstioni (a form in which the father of the college asks each student a question before his graduation), are two acts and two opponencies. A bachelor of divinity must be a master of arts of seven years standing: his exercises are, one act, after the fourth year, two opponencies, a concio ad clerum, and an English sermon. The ten-year men, who are candidates for this degree, are tolerated by a statute 12 Eliz. They are persons who, being twenty-four years of age and upwards, are admitted at any college to take the degree of bachelor of divinity after ten years. During the last two years they must reside the greater part of three several terms. Their exercises are the same as in the regular course. A bachelor of laws must be of six years standing complete, and must keep the greater part of nine several terms. The exercise is one act. A bachelor of physic must keep the greater part of nine several terms, and may be admitted any time in his sixth year: the exercise is one act and one opponency. A bachelor of music must enter his name at some college, and perform a solemn piece of music as an exercise prior to his degree.

In the university of Oxford, a bachelor of arts must keep sixteen terms, and appear once as a respondent in the schools. A bachelor of divinity must be master of arts of seven years standing: his exercises are one act, two opponencies, and a concio ad clerum after the fifth year. A bachelor of laws must be a master of arts of three years standing: his exercises are one act and two opponencies. A bachelor of medicine must be a master of arts of one year standing: his exercises are one act and one opponency. A bachelor of music must produce a competent testimonial that he has applied himself to that science during seven years, and must perform a piece of music of five parts publicly in the music school.

BACHELORS, KNIGHTS, the most ancient, but the lowest order of knights in England; known by the name of knights only. They are styled knights bachelors, either (according to some) as denoting their degree, quasi bas chevaliers; or, according to others, because this title, like the fortune of an unmarried man, does not descend to their posterity. The custom of the ancient Germans was to give their young men a shield and a lance in the great council; this was equivalent to the toga virilis of the Romans. Before this they were not permitted to bear arms, but were accounted as part of the father's household; after it, as part of the public. Hence some derive the usage of knighting, which has prevailed all over the western world since its reduction by colonies, from those northern heroes. Knights are called in the Latin equites aurati; aurati, from the gilt spurs they wore, and equites, be-

cause they always served on horseback; for it is observable that almost all nations call their knights by some appellation derived from a horse. They are also called in our law milites, because they formed a part, or indeed the whole of the royal army, in virtue of their feudal tenures: one condition of which was, that every one who held a knight's fee (which in Henry II.'s time amounted to twenty pounds per annum) was obliged to be knighted, and attend the king in his wars, or pay a fine for his non-compliance. The exertion of this prerogative, as an expedient to raise money in the reign of Charles I. gave great offence, though warranted by law and the recent example of queen Elizabeth. At the restoration it was, together with all other military branches of the feudal law, abolished, and it now only exists in an honorary title, conferred by the king's lightly touching the person, who is then kneeling, on the right shoulder with a drawn sword, and saying, 'rise, sir.' See KNIGHT and NOBILITY.

On bachelors, or unmarried men, the Roman censors frequently imposed fines. Dion Halicarnasseus mentions an old law by which all persons of full age were obliged to marry. But the most celebrated law of the kind was that made under Augustus, called the lex Julia de maritandis ordinibus; by which bachelors were made incapable of legacies or inheritances by will, unless from their near relations. This brought many to marry, according to Plutarch's observation, not so much for the sake of raising heirs to their own estates, as to make themselves capable of inheriting those of others. The rabbins maintain, that, by the laws of Moses, every body, except a few particular persons, is obliged in conscience to marry at twenty years of age; and that this makes one of their 613 precepts. Hence those maxims, so frequent among their casuists, that he who does not take the necessary measures to leave heirs behind him, is not a man, but ought to be reputed a homicide. Lycurgus was not more favorable to this state of life. By his laws, bachelors are branded with infamy, excluded from all offices civil and military, and even from the shows and public sports. At certain feasts they were forced to appear, to be exposed to the public derision, and led round the market-place. On one occasion, the women led them in this condition to the altars, where they were obliged to make amende honorable to nature, accompanied with a number of blows and lashes with a rod. To complete the affront, they forced them to sing certain songs composed in their own derision. The Christian religion has been supposed to be more indulgent to the bachelor state; because the apostle Paul has recommended it as preferable (as it certainly was) during the early ages of Christianity, when a man was in danger of suffering, not only in his own person or property, but in those of his nearest and dearest connexions, for the sake of religion; which rendered such persecutions more dreadful and severe upon the married than the unmarried. The ancient church, overlooking this principle, upon which the apostle's advice is evidently founded, recommended the bachelor state, as well as that of perpetual virginity in the other sex, as not only more perfect than the married state, but even as highly meritorious: and thus gave birth to the absurd system of monasteries, nunneries, and the celibacy of the clergy; which for so many ages has burdened Europe, with thousands of idle drones of both sexes. In the canon law, we find injunctions on bachelors, when arrived at puberty, either to marry or to turn monks and profess chastity in earnest. In England there was a tax on bachelors, after twenty-five years of age, £12. 10s. for a duke; and a common person 1s. by 7 Wil. III. 1695. They were also taxed by Mr. Pitt in an extra-duty on their servants.

BACHELORS OF THE CHURCH, baccalarii ecclesiæ, an inferior class of ecclesiastics, mentioned in some old records, which speak of the bishop with his canons and baccalarii.

BACHELOR'S PEAR, in botany, a name sometimes given to the solanum mammosum.

BACHER, a lofty ridge of mountains in Styria, circle of Cilly, near the Drave, about sixty-five miles in circuit.

BACHIAN, or BATCHIAN, one of the Molucca islands in the eastern ocean, separated by a narrow channel only, from the island of Gilolo. It is about fifty miles long, and twenty in average breadth, but much narrower in the middle than towards each end. The native prince of this island early formed an alliance with the Spaniards and Portuguese, who were expelled by the Dutch in 1610. It is fertile in sago, and other fruits of the climate; and was formerly considered as producing better cloves than any other island of these seas. On this island the Dutch fixed their principal settlement, before Amboyna attained its present pre-eminence. Bachian, covered with forests, contains a burning mountain; beds of coral adorn its shores, and gold has been classed among its products. It is under the government of a sultan, the sovereign of Oby, Ceram, Goram, and another contiguous islet. The inhabitants are Malay Mahommedans, who are considered as the most eastern disciples of the Arabian prophet. The chief town is Sabongo. Latitude about 0° 48′ S.; and long. 128° 0′ E.

BACHILERIA, in old law Latin, the commonality, as distinguished from the nobility.

BACHILLI. See BACILLI.

BACHMUTH, or BAKHMOUD, the chief town of a circle in the government of Ekaterinoslav, in European Russia, situated on a river of that name, which falls into the Donetz. It is well fortified, and has a citadel for the protection of its salt-works. It has belonged successively to the governments of Voronetz and New Russia, and was erected into its present government in 17[illegible]. The circle of Bachmuth borders on the government of Voronetz, and the country of the Don Cossacs, and is one of the most fertile parts of Little Russia. When a scarcity of water prevails in the summer, the supplies are brought from the Donetz. 104 miles N.N.W. of Azoph, and 112 east of Ekaterinoslav.

BACHNEU, or BONGHU, a market town of Transylvania, in the county of Kokelburg, on the river Little Kokel.

BACHU. See BAKU.

BACILLARIA, in entomology, a genus of

the class vermes, and order infusiora: its body consisting of cylindrical, straw-like filaments. The only species is the B. paradoxa, seu vibrio paxilifer.

BACILLI, or BACULI, in medicine (from baculus, Lat. a staff,) such compositions as are made up in a cylindrical figure, like a stick.

BACILLUM, in medicine, dim. of baculum, a troche in the form of a stick.

BACILLUM, in chemistry, iron instruments in the shape of a baculum, or staff.

BACK, *n. s. v. a.* & *adv.* } Sax. bac, bæc;
BACKED, *adj.* } Germ. *back*. The noun signifies the hinder part of the body; the outer part of the hand opposed to the palm; the thick part of any tool opposed to the edge. The adverb denotes the situation of being, and the direction of going. The adjective points out the back as the adjunct of being; the simple circumstance of having a back; and the verb is used in various senses, intimately connected and easily traced to one common source, the original etymon, namely, to mount on the back of a horse; to break a horse; to place upon the back; to maintain, to strengthen, to support, to defend, to justify, and to second.

His *back*, or rather burthen, show'd
As if it stooped with its own load. *Hudibras.*

Did they not swear, in express words,
To prop and *back* the house of lords?
And after turn'd out the whole houseful. *Id.*

Part following enter; part remain without,
And mount on others *backs*, in hopes to share.
Dryden.

The epistles being written from ladies forsaken by their lovers, many thoughts came *back* upon us in divers letters. *Id.*

Factious, and fav'ring this or t'other side,
Their wagers *back* their wishes. *Id.*

Methought love pitying me, when he saw this,
Gave me your hands, the *backs* and palms to kiss.
Donne.

Those who, by their ancestors, have been set free from a constant drudgery to their *backs* and their bellies, should bestow some time on their heads.
Locke.

He might conclude, that Walter would be upon the king's *back*, as his majesty was upon his.
Clarendon.

As the voice goeth round, as well towards the *back* as towards the front of him that speaketh, so does the echo: for you have many *back* echoes to the place where you stand. *Bacon.*

And all within it full of wyndingsis
And hidden ways that scarce an hound by smell
Can follow out those false footsteps of his
Ne none can *backe* returne that once are gone amis.
Spenser. Faerie Queene.

At the hour of death, all friendships of the world bid him adieu, and the whole creation turns its *back* upon him. *South.*

A great malice, *backed* with a great interest, can have no advantage with a man, but from his expectations of something without himself. *Id.*

Back you shall not to the house, unless
You undertake that with me. *Shakspeare.*

That roan shall be my throne,
Well, I will *back* him strait. O Esperance!
Bid Butler lead him forth into the park. *Id.*

He hath a garden circummur'd with brick,
Whose western side is with a vineyard *backed*. *Id.*

As I slept, methought
Great Jupiter, upon his eagle *back'd*,
Appear'd to me. *Id.*

Belike he means
Back'd by the pow'r of Warwick, that false peer,
T' aspire unto the crown. *Id.*

You are strait enough in the shoulders, you care not who sees your back; call you that *backing* of your friends? a plague upon such *backing!* give me them that will face me. *Id.*

He sent many to seek the ship Argo, threatening that if they brought not *back* Medea, they should suffer in her stead. *Raleigh's History of the World*

Where they are, and why they came not *back*,
Is now the labour of my thoughts. *Milton*

Back to thy native island might'st thou sail
And leave half-heard the melancholy tale. *Pope*

So rag'd Tydides boundless in his ire,
Drove armies *back* and made all Troy retire. *Id.*

This Cæsar found, and that ungrateful age,
With losing him went *back* to blood and rage.
Waller

I've been surpris'd in an unguarded hour,
But must not now go *back*; the love, that lay
Half smother'd in my breast, has broke through all
Its weak restraints. *Addison*

How shall we treat this bold aspiring man?
Success still follows him, and *backs* his crimes.
Id

To thee, Almighty God to thee,
Our childhood we resign;
'Twill please us to look *back* and see,
That all our lives were thine. *Watts.*

First Fear his hand its skill to try,
Amid the chords bewildered laid,
And *back* recoil'd he knew not why;
E'en at the sounds himself had made.
Collins

Direct us how to *back* the winged horse;
Favour his flight and moderate his course.
Roscommon.

These were seconded by certain demilaunces, and both *backed* with men at arms. *Sir J. Hayward.*

The patrons of the ternary number of principles, and those that would have five elements, endeavour to *back* their experiments with a specious reason.
Boyle.

We have I know not how many adages to *back* the reason of this moral. *L'Estrange.*

BACK, in the menage, and among farriers A horse's back should be straight, not hollow, which is called saddle-backed: horses of this kind are generally light, and carry their heads high, but want in strength and service. A horse with a weak back is apt to stumble. In the French riding-schools, to mount a horse *a dos*, is to mount him bare-backed, without a saddle.

To BACK an anchor, in maritime affairs, *empenneller une ancre*, Fr. to carry out a small anchor, as the stream or kedge, ahead of the large one, by which the ship usually rides, in order to support it, and prevent it from loosening, or coming home in bad ground. In this situation the latter is confined by the former, in the same manner that the ship is restrained by the latter.

To BACK astern in rowing, *scier à culer*, Fr. is to manage the oars in a direction contrary to the usual method, so as that the boat or vessel impressed by their force, shall retreat or move with her stern foremost.

Back the starboard oars! *scie tribord! avec les avirons*, Fr. the command to confine the above management to the oars on the right hand side of the boat only, in order to turn her round more speedily to that direction.

To Back and fill, *coiffer et faire servir les voiles*, Fr. is an operation generally performed in narrow rivers, when a ship has the tide in her favor, and the wind is against her.—Exam. 'We were obliged to back and fill occasionally to get up the Thames.'

To Back the sails, *mettre á scier*, Fr. is to arrange them in a situation that will occasion the ship to retreat or move astern, in consequence of the tide or current in her favor, and the wind contrary, but light. This operation is particularly necessary in narrow channels, when a ship is carried along sideways by the strength of that tide or current, and it becomes requisite to avoid any object that may intercept her course, as shoals, or vessels under sail, or at anchor: it is also necessary, in a naval engagement, to bring a ship back, so as to lie oppposite to her adversary, when she is too far advanced in the line; and also in fleets under convoy, where ships are too much crowded, by the above operation they may be preserved from falling aboard each other. See the article Aback.

Back the main-topsail! *brasse le grand hunier sur le mát!* Fr. the command to brace that sail in such a manner that the wind may exert its force against the fore-part of the sail, and by thus laying it aback materially retard the ship's course.

Back, or Dutchman's Cap, an islet of the Hebrides. Long. 6° 27′ W., lat. 56° 29′ N.

BACKAR, or Behkur, a district and town of Hindostan, in the province of Moultan. The town is situated on an island formed by the Indus, near its junction with the Dommoody; formerly it was called Munsoorah, and had a strong fort. Long. 70° 2′ E., lat. 28° 31′ N.

BACK BAR, the bar in a chimney, for suspending vessels over the fire.

BACK-BEAR, Back-berend, Backberond, in old law, a criminal caught carrying off something on his back. See Backcarry.

BACK'BITE, *v.* } From back and bite.
Back'biter, *n. s.* } A familiar term for the
Back'bitingly, *adv.* } calumny and calumniators which shun the presence of their victims. To censure the absent; the coward who defames in the dark.

Use his men well Davy, for they are arrant knaves and will *backbite*. *Shakspeare.*

Nobody is bound to look upon his *backbiter*, or his underminer, his betrayer, or his oppressor, as his friend. *South.*

BACK-BOARD, in maritime affairs, is of a semi-circular figure, placed transversely in the after-part of a boat, like the back of a chair, to recline against while sitting in the stern sheets.

BACK-BOND, in Scots law, a bond granted by him who receives a deed to declare the purpose of it, and to bind the granter to perform accordingly.

BACK'BONE, *n. s.* from back and bone. The bone of the back.

The *backbone* should be divided into many vertebræ for commodious bending, and not to be one entire rigid bone. *Ray.*

BACK'CARRY. Having on the back.

Manhood in his forest laws, noteth it for one of the four circumstances or cases, wherein a forester may arrest an offender against vert or venison in the forest, viz. stable-stand, dog-draw, *backcarry*, and bloody hand. *Cowell.*

BACK'DOOR, *n. s.* From back and door. The door behind the house; privy passage.

The procession durst not return by the way it came; but, after the devotion of the monks, passed out at a *backdoor* of the convent *Addison.*

Popery, which is so far shut out as not to re-enter openly, is stealing in by the *backdoor* of atheism. *Atterbury.*

BACKER, or Bakker (Jacob), a painter of portraits and history, was born at Harlingen in 1609, but spent the greatest part of his life at Amsterdam. He was remarkable for an uncommon readiness of hand and freedom of pencil. His incredible expedition appeared in a portrait of a lady from Haerlem, whom he painted at half length, and began and finished in one day; though he adorned the figure with rich drapery and several ornamental jewels. He also painted historical subjects with success; and has left a fine picture of Cimon and Iphigenia. In designing academy figures, his expression was so just, and his outline so correct, that he obtained the prize from all his competitors; and his works are bought up at very high prices in the Low Countries. The Carmelites church at Antwerp has a capital picture of his of the Last Judgment. He died in 1651.

Backer, or Bakker (Jacques, or James), also a painter of history, was born at Antwerp in 1530, and learned the principles of painting from his father, who was very knowing in his profession, though his works were in no great estimation. After his death he lived with one Palermo, a dealer in pictures, who avariciously took care to keep him incessantly employed, and sent his paintings to Paris to be disposed of, where they were exceedingly admired. The judicious were eager to purchase them; and though the transactor sold them at a great price, yet the artist was not proportionably rewarded, but continued still in the same depressed condition. His merit, indeed was universally allowed, but his name, and the narrowness of his circumstances, were as universally unknown. He had a clean light manner of penciling, and a tint of color that was extremely agreeable. He died in 1560.

BACKEREEL, or Bacquerelli (William), a painter of history, born at Antwerp, and a disciple of Rubens, at the same time with Vandyck. When each of them quitted that master, and commenced painters, Backereel was little inferior to Vandyck, which may be seen in the works of the former, in the church of the Augustin monks at Antwerp. He had likewise a taste for poetry; but exercising that talent too freely in writing satires against the Jesuits, they compelled him to fly from Antwerp. Sandrart observes, that in his time there were seven or eight eminent painters of this name in Italy and the Low Countries.

BACKERGUNGE, a district in the south-

east part of Bengal, a considerable portion of which, called Bokla, situated near the sea-side, was, in 1584, overwhelmed by the sea, and scarcely has recovered from the inundation: the other parts are, however, very productive, but being subject to inundations, are very unhealthy. But there are settled here a number of the descendants of the Portuguese, who, in the year 1666, were invited by the nuwab, Shaista Khan, to desert the raja of Arracan, and enter into his service. Also a town in the province of Bengal, capital of a district 120 miles east of Calcutta; it is the residence of the English magistrate, and carries on a very considerable trade in rice, salt, and cotton cloths. Long. 89° 20′ E., lat. 22° 42′ N.

BACK-FRAME WHEEL, for laying cordage, from a six-thread ratline, to a two-inch rope, is about four or five feet in diameter, and is hung between two uprights, fixed by tenons, on a truck, and supported by a knee of wood. Over its top is a semi-circular frame, called the head, to contain three whirls (that run on the brasses), with iron spindles, secured by a hasp and pin. They are worked by means of a leather band encircling the whirls and wheel. Three of the whirls are turned when hardening the strands, and only one when closing the rope, the strands being hung together on it. The truck, on which the back-frame wheel is fixed, runs on four wheels, and is made of three-inch oak plank, about nine feet long, and thirteen inches broad at one end, and eleven inches broad at the other.

BACK'FRIEND, *n. s.* From back and friend. A friend backwards; that is, an enemy in secret.

Set the restless importunities of talebearers and *backfriends* against fair words and professions
L'Estrange.

Far is our church from encroaching upon the civil power; as some who are *backfriends* to both would maliciously insinuate. *South.*

BACKGAM'MON, *n. s.* From *bach gammon*, Welsh, a little battle; a play or game at tables, with box and dice.

Till finding your old foe the hangman,
Was like to lurch you at *backgammon*. *Hudibras.*

In what esteem are you with the vicar of the parish? can you play with him at *backgammon*? *Swift.*

BACKGAMMON, a game played with dice and tables, to be learned only by observation and practice. It is said to have been invented in Wales, in the period preceding the Conquest. *Gloss. ad Leges Wallicas, a voc. Tawlbwrdd*, cited by Henry, vol. iv. p. 404. 8vo.

This game is played with dice, upon a table, by two persons. The table is divided into two parts, upon which there are twenty-four black and white spaces, called points. Each adversary has fifteen men, black and white, to distinguish them; and they are disposed of in the following manner: Supposing the game to be played into the right hand table, two are placed upon the ace point in the adversary's table, five upon the six point in the opposite table, three upon the cinque point in the hithermost table, and five on the six point in the right-hand table. The grand object in this game is for each player to bring the men round into his right hand table by throwing with a pair of dice those throws that contribute towards it, and at the same time prevent the adversary doing the like. The first best throw upon the dice is esteemed aces, because it stops the six point in the outer table, and secures the cinque in the thrower's table; whereby the adversary's two men upon the thrower's ace point cannot get out with either quatre, cinque, or six. This throw is an advantage often given to the antagonist by the superior player. When he carries his men home in order to lose no point, he is to carry the most distant man to his adversary's bar point, that being the first stage he is to place it on; the next stage is six points farther, viz. in the place where the adversary's five men are first placed out of his tables. He must go on in this method till all his men are brought home, except two, when by losing a point, he may often save the gammon, by throwing two fours or two fives. When a hit is only played for, he should endeavour to gain either his own or adversary's cinque point: and if that fails by his being hit by the adversary, and he finds him forwarder than himself, in that case he must throw more men into the adversary's tables; which is done in this manner: he must put a man upon his cinque or bar point; and if the adversary fails to hit it, he may then gain a forward game instead of a back game; but if the adversary hits him, he should play for a back game: and then the greater number of men which are taken up makes his game the better, because by these means he will preserve his game at home: and then he should endeavour to gain both his adversary's ace and trois points, or his ace and deuce points, and take care to keep three men upon the adversary's ace point, that in case he hits him from thence, that point may remain still secure to himself. A back game should not be played for at the beginning of a set, because it would be a great disadvantage, the player running the risk of a gammon to win a single hit.

A variety of instructions with regard to this curious game, are given by Mr. Hoyle, who calculates the odds of the game with great accuracy. The following particulars, however, may be of use to the generality of players. If a player has taken up two of the adversary's men, and happens to have two, three, or more points made in his own tables, he should spread his men, that he may either take a new point in his tables, or be ready to hit the man which the adversary may happen to enter. If he finds, upon the adversary's entering, that the game is upon a par, or that the advantage is on his own side, he should take the adversary's man up whenever he can, it being twenty-five to eleven that he is not hit: except when he is playing for a single hit only; then if playing the throw otherwise gives him a better chance for it, he ought to do it. As it is five to one against his being hit with double dice, he should never be deterred from taking up any one man of the adversary's. If he has taken up one of the adversary's men, and should happen to have five points in his own tables, and forced to leave a blot out of his tables,

he should endeavour to leave it upon doublets preferable to any other chance; because the odds are thirty-five to one, that he is not hit; whereas it is only seventeen to one but he is hit upon any other chance. When the adversary is very forward, a player should never move a man from his own quatre, trois, or deuce points, thinking to bear that man from the point where he put it, as nothing but high doublets can give him any chance for the hit. Instead of playing an ace or a deuce from any of those points, he should play them from his own size or highest points, so that throwing two fives, or two fours, his size and cinque points being eased, would be a considerable advantage to him; whereas, had they been loaded, he must have been obliged to play otherwise. It is the interest of the adversary to take up the player as soon as he enters. The blot should be left upon the adversary's lowest point; that is to say, upon his deuce point rather than upon his trois point; or upon his trois point rather than upon his quatre point; or upon his quatre point preferable to his cinque point, for a reason before mentioned: all the men the adversary plays upon his trois, or his deuce points, are deemed lost, being greatly out of play; so that those men not having it in their power to make his cinque point, and his game being crowded in one place and open in another, the adversary must be greatly annoyed by the player. If the player has two of the adversary's men in his tables, he has a better chance for a hit than if he had more, provided his game is forwarder than that of his antagonist; for if he had three or more of the adversary's men in his tables, he would stand a worse chance to be hit. When a player is running to save the gammon, if he should have two men upon his ace point, and several men abroad, although he should lose one point or two in putting his men into his tables, it is his interest to leave a man upon the adversary's ace point, because it will prevent his adversary from bearing his men to the greatest advantage, and at the same time the player will have a chance of the adversary's making a blot, which he may chance to hit. However, if a player finds, upon a throw, that he has a probability of saving his gammon, he should never wait for a blot, as the odds are greatly against his hitting it, but should embrace that opportunity.

The following are directions for calculating the odds of saving or winning the gammon. Suppose the adversary has so many men abroad as requires three throws to put them into his tables, and at the same time that the player's tables are made up, and that he has taken up one of the adversary's men; in this case it is about an equal wager that the adversary is gammoned. For, in all probability, the player has borne two men before he opens his tables, and when he bears the third man, he will be obliged to open his size or cinque point. It is then probable that the adversary is obliged to throw twice before he enters his men in the player's tables, twice more before he puts that man into his own tables, and three throws more to put the men which are abroad into his own tables, in all seven throws. Now the player having twelve men to bear, he may be forced to make an ace or a deuce twice before he can bear all his men, and consequently will require seven throws in bearing them; so that, upon the whole, it is about equal whether the adversary is gammoned or not. Suppose a player has three men upon his adversary's ace point, and five points in his own tables, and that the adversary has all his men in his tables, three upon each of his five highest points. Has the player a probability of gammoning his adversary or not?

	Points.
For bearing three men from his 6th point is	18
From his 5th point	15
From his 4th point	12
From his 3rd point	9
From his 2nd point	6
In all	60
Bringing his three men from the adversary's ace point to his size point in his own tables, being eighteen points each, and making together	54
There must remain	6

It is plain from this calculation, that the player has much the best of the probability of the gammon, exclusive of one or more blots which the adversary is liable to make in bearing his men, supposing at the same time the throws to be upon an equality. Suppose two blots are left, either of which cannot be hit but by double dice; one must be hit by throwing eight and the other by throwing nine; so that the adversary has only one die to hit either of them. What are the odds of hitting either of them? The chances of two dice being in all 36

The chance to hit 6, are 6 and 2 twice	2
5 and 3 twice	2
2 Deuces	1
2 Fours	1
The chances to hit 9 are 6 and 3 twice	2
5 and 4 twice	2
2 Trois	1
For hitting in all	11
Chances for not hitting, remain	25

So that the odds are twenty-five to eleven against hitting either of these blots.

This method may be taken to find out the odds of hitting three, four, or five blots upon double dice; or blots made upon double and single dice at the same time. After knowing how many chances there are to hit any of those blots, they must be added altogether, and then subtracted from the number thirty-six, which are the chances of the two dices, and the question is solved.

The laws of Backgammon are, 1. If a man is taken from any point, it must be played; if two men are taken from it, they also must be played. 2. A man is not supposed to be played, till it is placed upon a point and quitted. 3. If a player has only fourteen men in play, there is no penalty inflicted, because by his playing with a less number than he is entitled to, he plays to a disadvantage, for want of the deficient man to make up his tables. 4. If he bears any

number of men before he has entered a man taken up, and which of course he was obliged to enter, such men so borne must be entered again in the adversary's tables as well as the man taken up. 5. If he has mistaken his throw and played it, and his adversary has thrown, it is not in the choice of either of the players to alter it, unless they both agree so to do.

The probable method of prolonging a hit at backgammon, affords a case of instruction, as well as curiosity; for there is a probability of making the hit last by one of the players for many hours, although they shall both play as fast as usual. Suppose B to have borne thirteen men, and that A has his fifteen men in B's tables, viz. three men upon his size point, as many upon his cinque, quatre, and trois points, two upon his deuce point, and one upon his ace point. A in this situation can prolong it by bringing his fifteen men home, always securing six close points till B has entered his two men, and brought them upon any certain point; as soon as B has gained that point, A will open an ace, deuce, or trois point, or all of them; which done, B hits one of them, and A, taking care to have two or three men in B's tables, is ready to hit that man; and also he being certain of taking up the other man, has it in his power to prolong the hit almost to any length, provided he takes care not to open such points as two fours, two fives, or two sixes, but always to open the ace, deuce, or trois points, for B to hit him.

We add the following two critical cases for a back game: 1. Suppose the fore game to be played by A, and that all his men are placed as usual; B has fourteen of his men placed upon his adversary's ace point, and one man upon his adversary's deuce point, and B is to throw; who has the best of the hit? Answer: A has the best of it, gold to silver: because, if B does not throw an ace to take his adversary's deuce point, which is twenty-five to eleven against him, A will take up B's men in his tables, either singly or to make points; and then if B secures either A's deuce or trois point, A will put as many men down as possible, in order to hit, and thereby get a back game. It is evident that the back game is very powerful; consequently, whoever practises it must become a greater proficient at the game than he could by any other means. 2. Suppose A to have five men placed upon his size point, as many upon his quatre point, and the same number upon his deuce point, all in his own tables. At the same time let us suppose B to have three men placed upon A's ace point, as many upon A's trois point, and the same number upon A's cinque point, in his own tables, and three men placed as usual out of his tables; Who has the best of the hit? Answer: The game is equal till B has gained his cinque and quatre points in his own tables; which, if he can effect, and by playing two men from A's cinque point, in order to force his adversary to blot by throwing a cinque, which, should B hit, he will have the best of the hit.

BACK-HEAVER, a machine long used in several parts of England, particularly in Hampshire, Wiltshire, and Sussex, for winnowing corn. An improved construction of this machine was proposed by Dr. Hales in 1747, which not only renders it fit for winnowing corn sooner and better than by any other means hitherto used, but also for clearing it of the very small corn, seeds, smut-balls, &c.

BACK'HOUSE, *n. s.* From back and house. The buildings behind the chief part of the house.

Their *backhouses*, of more necessary than cleanly service, as kitchens, stables, are climbed up unto by steps. *Carew.*

BACKHUYSEN (Ludolph), an eminent painter, born at Embden, in 1631, who received his earliest instruction from Albert Van Everdingen; but acquired his principal knowledge by frequenting the painting rooms of different masters. One of these was Henry Dubbels, whose skill in his art was great; and he was equally communicative of his knowledge to others. From him Backhuysen obtained more benefit than from all the painters of his time. His subjects were sea-pieces, ships, and sea ports. He had not practised long when he became the object of general admiration; so that his drawings were sought after, and several of them were bought up at 100 florins. He studied nature attentively in all her forms; in gales, calms, storms, clouds, rocks, skies, lights, and shadows; and expressed every subject with so sweet a pencil, and such transparence and lustre, as placed him above all the artists of his time, except the younger Vandervelde. It was a frequent custom with Backhuysen, whenever he could procure resolute mariners, to go to sea in a storm, to store his mind with images directly copied from nature; and the moment he landed, impatiently to run to his pallette to delineate those incidents of which the traces might, by delay, be obliterated. He perfectly understood the management of the Chiaro-scuro, and, by his skill in that part of his art, gave uncommon force and beauty to his objects. His works may easily be distinguished by the freedom and neatness of his touch, the clearness and natural agitation or quiescence of the water, a peculiar tint in his clouds and skies, and the exact proportions of his ships. He painted, for the Burgomasters of Amsterdam, a large view of the city, for which they gave him 1300 guilders, and afterwards presented it to the king of France. No painter was ever more honored by the visits of kings and princes than Backhuysen; the king of Prussia was one of the number; and Peter the Great often endeavoured to draw after vessels which he had designed. He died in 1709.

BACKING. See HORSEMANSHIP.

BACKING WARRANTS, in law, denotes the signing of such as have been issued by a justice of the peace in one county, by a justice of the peace in another, which is necessary before they can be executed there. This practice is authorised by statutes 23 Geo. II. c. 26. and 24 Geo. II. c. 55.

BACKNANG, a town in the kingdom of Wirtemberg, circle of Heilbronn, and district of the Lower Neckar. It lies on the Murr, and contains 3020 inhabitants, many of whom are woollen-weavers and tanners. Eight miles east of Marbah, and twelve north-east of Stutgard.

BACK-PAINTING, the method of painting mezzotinto prints, pasted on glass, with oil-colors. See MEZZOTINTO. It consists chiefly in laying the print upon a piece of crown-glass, of such a size as fits it. To do this, the print should be laid in clean water for two days and nights, if the print be on very strong, close, and hard gummed paper; but if upon an open, soft, spungy paper, two hours, or more, will sometimes suffice. The paper or picture having been sufficiently soaked, take it out and lay it upon two sheets of paper, and cover it with two more; and let it lie there a little to draw out the moisture. In the mean time, take the glass the picture is to be put upon, and set it near the fire to warm; take Strasburg turpentine, warm it over the fire till it is grown fluid, then, with a hog's-hair brush, spread the turpentine very smoothly and evenly on the glass. Then take the mezzotinto print from between the papers, and lay it upon the glass; beginning first at one end, rubbing it down gently till it lie close, and there be no wind bladders between. After this rub or roll off the paper from the back of the print, till it looks black, i. e. till nothing appears but the print, like a thin film left upon the glass, and set it aside to dry. Then varnish it over with some white transparent varnish, that the print may be seen through it; and it is then fit for painting. The utmost care is necessary in rubbing or rolling the paper off the print so as not to tear it, especially in the light parts. Or the prints, instead of being soaked, may be rolled up and boiled for about two hours, more or less, according to the quality of the paper; and that will render it as fit for rubbing, rolling or peeling, as the other method. This being done, and the oil-colors prepared, ground very fine, and tempered up very stiff, lay on the back of the transparent prints such colors as each part requires; letting the master-lines of the print still guide the pencil; and thus each particular color will lie fair to the eye on the other side of the glass, and almost as well as a painted piece, if it be done neatly. The shadows of the print are generally sufficient for the shadow of every color; but if it is wished to give a shadow by the pencil, let the shadows be laid on first, and the other colors afterwards. In this kind of back-painting it is not necessary to lay on the colors very smooth. As the chief aim is to have the colors appear well on the fore-side of the print, all that is necessary is to lay the colors on thick enough, that its body may strike the color of it plainly through the glass.

BACK'PIECE, *n. s.* From back and piece. The piece of armour which covers the back.

The morning that he was to join battle, his armourer put on his *backpiece* before, and his breast-plate behind *Camden.*

BACK-QUADRANT, the same with BACK-STAFF. See QUADRANT.

BACK RIVER, a river of Maryland, which runs into the Chesapeake.

BACK'ROOM, *n. s.* From back and room. A room behind; not in the front.

If you have a fair prospect backwards of gardens, it may be convenient to make *backrooms* the larger. *Mox. Mech. Exercises.*

BACKS, among dealers in leather, denote the thickest and best tanned hides, used chiefly for soles of shoes.

BACK'SIDE, *n. s.* From back and side. The hinder part of any thing; the hind part of an animal; the yard or ground behind a house.

If the quicksilver were rubbed from the *backside* of the speculum, the glass would cause the same rings of colours, but more faint; the phænomena depend not upon the quicksilver, unless so far as it increases the reflection of the *backside* of the glass. *Newton.*

A poor ant carries a grain of corn, climbing up a wall with her head downwards and her *backside* upwards. *Addison.*

The wash of pastures, fields, commons, roads, streets, or *backsides*, are of great advantage to all sorts of land. *Mortimer.*

BACK-SINEWS OF A HORSE, the extensor tendons of the foot, placed behind the fore-leg, and very frequently injured by over-exertion. The inflammation hereby produced is best removed in the first instance by emollient and astringent cataplasms.

BACK'SLIDE, *v. n.* } From back and slide.
BACK'SLIDER, *n. s.* } To retrograde in reli-
BACK'SLIDING. } gion. Exclusively a scriptural and theological term. Its precise signification, as employed by divines, is not apostacy as stated by Dr. Johnson, but a tendency to it. It supposes a religious profession advanced to a state of spirituality and consistency, and a receding from that state in a greater or less degree in principle or practice: but it does not amount to a total abandonment of either.

The *backslider* in his heart shall be filled with his own ways. *Solomon.*

Thy *backsliding* shall reprove thee. *Jeremiah.*

Remember thy *backslidings* from me; lament over them: confess them before me; and look to God to enable thee to take thy steps with more firmness, and to offer up thy prayers with more spirituality. *Cecil.*

BACK'STAFF, *n. s.* From back and staff; because in taking an observation, the observer's back is turned toward the sun. An instrument useful in taking the sun's altitude at sea. It was sometimes called Davis's quadrant, from its inventor, captain John Davis, a Welchman, and a celebrated navigator, who produced it about the year 1590.

This instrument consists of two concentric arches of box-wood, and three vanes: the arch of the longer radius is of 30°, and the other 60°, making between them 90°, or a quadrant: also the vane at the centre is called the horizon-vane, that on the arch of 60° the shade-vane, and that on the other arch the sight-vane. It is unnecessary to give a more minute description, since more complete and accurate instruments have entirely superseded the use of this.

BACK'STAIRS, *n. s.* From back and stairs. The private stairs in the house.

I condemn the practice which hath lately crept into the court at the *backstairs*, that some pricked for sheriffs get out of the bill. *Bacon.*

BACK'STAYS, *n. s.* From back and stay. Ropes or stays which keep the masts of a ship from pitching forward or overboard.

The BACKSTAYS, Fr. *galhaubans*, are long ropes extending from the top-mast-heads to the starboard and larboard sides of the ship, where they are farther extended to the channels,

they are used to second the efforts of the shrouds, in supporting the masts, when strained by a weight of sail in a fresh wind.

They are usually distinguished into breast-backstays and after-backstays; the intent of the first being to sustain the mast when the ship sails upon a wind; or, in other terms, when the wind acts upon the ship sideways; the second is to enable her to carry sail when the wind is further aft; and the third kind take their name from being shifted or changed from one side to the other, as occasion requires. There are also backstays for the top-gallant-masts, in large ships, which are fixed in the same manner with those of the top-masts.

A pair of backstays is usually formed of one rope, which is doubled in the middle, and fastened there so as to form an eye, which passes over the mast-head, from whence the two ends hang down, and are stretched to the channels, by dead-eyes and lanyards. See the article Dead-eyes, &c.

Backstay Stool, a short piece of plank, fitted for the security of the dead-eyes, and chains for the backstays, though sometimes the channels are left long enough at the after end, for the backstays to be fitted thereto.

BA'CKSWORD, *n. s.* From back and sword. A sword with one sharp edge.

Bull dreaded not old Lewis at *backsword*.
Arbuthnot.

BACK Tack, in Scots law, a lease granted by a wadsetter, or heritable creditor, who, instead of possessing the wadset-lands, grants a tack thereof to the reverser or heritable debtor, for payment of a certain sum in name of tack duty.

BACK'WARD, *n. s. adv.* & *adj.* } From back, and peapb, Sax. that is, towards the
Back'wards,
Back'wardly, *adv.*
Back'wardness, *n. s.*

back; contrary to forward. Backward, as an adverb, denotes simply the manner of going; and is distinguished from back, thus: a person stands back who does not wish to be in the way; he goes backward when he does not wish to turn his back on an object. As an adjective, its meaning is unwilling, or averse. And hence it is often used in the sense of hesitating, dilatory. Slow in apprehension, and in growth. The substantives take their literal and figurative meaning from the adverb and the adjective.

They went *backward*, and their faces were *backward*. *Genesis.*

All things are ready, if our minds be so:
Perish the man whose mind is *backward* now.
Shakspeare.

It should seem then, that Dobbin's tail grows *backward*. *Id.*

What seest thou else
In the dark *backward* or abysm of time? *Id.*

The monstrous sight
Struck them with horror *backward*; but far worse
Urg'd them behind. *Milton.*

Then darting fire from her malignant eyes,
She cast him *backward* as he strove to rise.
Dryden.

We are strangely *backward* to lay hold of this safe, this only method of cure. *Atterbury.*

The thing by which we are apt to excuse our *backwardness* to good works, is the ill-success that hath been observed to attend well-designing charities. *Id.*

Cities laid waste, they storm'd the dens and caves
For wiser brutes are *backward* to be slaves. *Pope.*

Our mutability makes the friends of our nation *backward* to engage with us in alliances. *Addison.*

It often falls out that the *backward* learner makes amends another way. *South.*

To prove the possibility of a thing, there is no argument to that which looks *backwards*; for what has been done or suffered may certainly be done or suffered again. *Id.*

Like Numid lions by the hunters chas'd,
Though they do fly, yet *backwardly* do go
With proud aspect, disdaining greater haste.
Sidney.

The mind is *backward* to undergo the fatigue of weighing every argument. *Watts.*

BACK-WORM. See Filanders.

BACO, a town of Mindoro, one of the Philippines, the capital of the island, and residence of a Spanish judge. The environs are well watered by springs from the mountains, which are covered by sarsaparilla. Long. 121° 5′ E., lat. 13° 18′ N.

Baco, in old Latin, a fat hog.

BACOBA, in botany, a name by which some authors call the banana tree, or musa fructu breviori.

BACON (Anthony), the son of Sir Nicolas, and elder brother to the celebrated lord chancellor, was born in 1558, and educated at Cambridge. He spent much of his time in travelling, and thus became personally acquainted with most of the literati of his age. In 1579, at the age of twenty-one, he went to Paris, where he resided for some time; and thence to Bourges and Geneva, where he lodged at the house of the celebrated Theodore Beza. From Geneva he successively removed to Montpelier, Marseilles, Bourdeaux, and Montauban, sometimes communicating intelligence of importance to England. In 1585 he visited Henry, king of Navarre, afterwards the great Henry IV. of France, who was then at Bearn; and became acquainted with the learned Lambert Danæus, who, as a mark of esteem, dedicated several of his works to him. His health failing, he returned to England in February, 1591-2; and in 1595 took up his residence at Essex house, where he carried on a most extensive correspondence with the foreign literati, and among others with king Henry IV. The time and place of his death is uncertain.

Bacon (Francis), lord high chancellor of England, under king James I. was son of Sir Nicholas Bacon, by Anne, daughter of Sir Anthony Cook, eminent for her skill in Latin and Greek. He was born in 1650; and showed such marks of genius that he was taken notice of by Queen Elizabeth when very young. He was educated at Trinity college, Cambridge; and made such progress in his studies, that, before he was sixteen, he had not only traversed the whole circle of the liberal arts as then taught, but began to perceive those imperfections in the reigning philosophy which he afterwards so effectually exposed. On his leaving the university his father sent him to France; where, before he was nineteen years of age, he wrote a general view of the state of Europe: but Sir Nicholas

dying, he was obliged suddenly to return to England, when he applied himself to the study of the common law, at Gray's-Inn. At this period the famous Earl of Essex, who could distinguish merit, entered into intimate friendship with him; zealously attempted, though without success, to procure him the office of queen's solicitor; and, in order to comfort his friend under the disappointment, conferred on him a present of land to the value of £1800. Bacon, notwithstanding the Earl's friendship, and even the early prepossession of her majesty in his favor, met with many obstacles to his preferment during her reign. His enemies represented him as a speculative man, whose head was filled with philosophical notions, and therefore more likely to perplex than forward public business. It was with great difficulty that lord treasurer Burleigh obtained for him the reversion of register to the star chamber, worth about £1600 a-year, which only fell to him about twenty years after. He did not obtain any other preferments from queen Elizabeth; though, if obedience to a sovereign in the most disagreeable of all offices, viz. the casting reflections on a deceased friend, entitled him, he might have claimed it. The people were so clamorous, even against the queen herself, on the death of Essex, that it was thought necessary to vindicate the conduct of the administration; and to Bacon was assigned this disgraceful task. Upon the accession of James he was soon raised to considerable honors; and wrote in favor of the union of the two kingdoms of Scotland and England. In 1616 he was sworn of the privy council. He then applied himself to the reducing and recomposing the laws of England. When attorney-general, he distinguished himself by his endeavours to restrain duelling, then very frequent. In 1617 he was appointed lord keeper of the great seal; and, in 1618, lord chancellor of England, and created Lord Verulam. In the midst of these honors, and the multiplicity of business, he forgot not his philosophy, but in 1620 published his great work Novum Organum. In 1621 he was advanced to the dignity of Viscount St. Albans, and appeared with great splendor at the opening of the session of parliament; but soon after met with a severe reverse of fortune. For about the twelfth of March, a committee of the house of commons being appointed to inspect the abuses of courts of justice, the chancellor was openly accused of corruption, and the king is said to have positively enjoined him to submit to his peers, promising to reward him afterwards! The chancellor, though he foresaw his approaching ruin if he did not plead for himself, resolved to obey; and the house of peers, on the 3d of May, 1621, gave judgment against him, 'that he should be fined £40,000, and remain prisoner in the tower during the king's pleasure; should for ever be incapable of any office, place, or employment in the state, and that he should never sit in parliament, or come within the verge of the court.' The fault which, next to his ingratitude to Essex, thus tarnished the glory of this illustrious man, is said to have principally proceeded from his indulgence to his servants, who made a corrupt use of it. One day, during his trial, passing through a room where several of his domestics were sitting, upon their rising up to salute him, he said, 'Sit down, my masters; your rise hath been my fall.' And we are told by Rushworth, in his historical collections, 'that he treasured up nothing for himself or family, but was over-indulgent to his servants, and connived at their takings: they were profuse and expensive, and had at their command whatever he was master of. The gifts taken were for the most part for interlocutory orders. His decrees being generally made with so much equity, that though gifts rendered him suspected of injustice, yet never any decree made by him was reversed as unjust.' It was peculiar to this great man (say the authors of the Biog. Brit.) to have nothing narrow and selfish in his composition: he gave away without concern whatever he possessed; and believing other men of the same mould, he received with as little consideration. He retired, after a short imprisonment, from the engagements of an active life, to the shade of a contemplative one, which he had always loved. The king remitted his fine, and he was summoned to parliament in the first year of King Charles I. In his recess he composed the greatest part of his English and Latin works, and it appears from them that his thoughts were still free, vigorous, and noble. The last three years of his life he devoted wholly to his studies. He died in 1626; and was buried in St. Michael's church at St. Albans, where a monument of white marble was erected to him by Sir Thomas Meautys', formerly his secretary. A complete edition of his works was published at London in 1740. Addison has said of him, that he had the sound, distinct, comprehensive, knowledge of Aristotle, with all the beautiful light graces and embellishments of Cicero. Mr. Walpole calls him the prophet of arts, which Newton was afterwards to reveal; and adds, that his genius and his works will be universally admired as long as science exists. We must add, from another writer, with regret, 'as long as ingratitude and adulation are despicable, so long shall we lament the depravity of this great man's heart. Alas! that he, who could command immortal fame, should have stooped to the little ambition of power.'

> If parts allure thee, think how Bacon shin'd;
> The wisest, brightest, meanest of mankind. *Pope.*

Bacon (Robert), a divine of the thirteenth century, was born about 1168. He studied at Oxford, where he distinguished himself by the quickness of his parts. Thence, according to the custom of that age, he removed to Paris, where he perfected himself in all the branches of learning. After his return he settled at Oxford, and read divinity lectures. In 1233 he was made treasurer of the cathedral church of Salisbury; and distinguished himself by a sermon before king Henry III. at Oxford. In 1240 he lost his great patron and intimate friend, Edmund, archbishop of Canterbury, and possibly this circumstance, joined to his love of a retired life, might induce Bacon, though very old, to enter into the order of Friars Preachers. In gratitude to the archbishop, Bacon wrote his life, which was

highly esteemed. He wrote also many other learned pieces, and died in 1248.

Bacon (Roger), a Franciscan friar of surprising genius and learning; born near Ilchester in Somersetshire, in 1214. He studied first at Oxford, and afterwards at Paris, which, in those times, was esteemed the centre of literature. Here he made so rapid a progress in the sciences, that he was esteemed the glory of that university, and much caressed by several of his countrymen, particularly Robert Grouthead, afterwards bishop of Lincoln, his friend and patron. About 1240 he returned to Oxford, and, assuming the Franciscan habit, prosecuted experimental philosophy, with unremitting ardor. In this pursuit, in experiments, instruments, and in scarce books, he tells us, he spent, in the space of twenty years, no less than £2000, which was given him by some of the heads of the university. But such extraordinary talents, and his astonishing progress in sciences, which, in that ignorant age, were totally unknown to the rest of mankind, whilst they raised the admiration of the more intelligent few, could not fail to excite the envy and malice of his illiterate fraternity; who found no difficulty in propagating the notion of Bacon's dealing with the devil. Under this pretence, he was restrained from reading lectures; his writings were confined to his convent; and, in 1278, he himself was imprisoned in his cell. At this time he was sixty-four years of age. Nevertheless, being permitted the use of his books, he went on in the rational pursuit of knowledge, corrected his former labors, and wrote several curious pieces. When he had been ten years in confinement, Jerome de Ascoli being elected pope, Bacon solicited his holiness to be released; and towards the end of that pope's reign, obtained his liberty. He spent the remainder of his life in the college of his order, where he died in 1294, in the eightieth year of his age, and was buried in the Franciscan church. Such are the few particulars, which the most diligent researches have been able to discover concerning this very great man; who, like a single bright star in a dark hemisphere, shone forth in an age of ignorance and superstition, the light and glory of his country. His works are: 1. Epistola fratris Rogeri Baconis, de Secretis Operibus Artis et Naturæ, et de Nullitate Magiæ. Paris, 1542, 4to. Basil, 1593, 8vo. 2. Opus Majus. Lond. 1733, fol. published by Dr. Jebb. 3. Thesaurus Chemicus. Francf. 1603, 1620. This was probably the editor's title; but it contains several of our author's treatises on this subject. There are said to remain in different libraries several manuscripts of his not yet published.

Bacon (Sir Nathaniel), K. B. and an excellent painter, was a younger son of Sir Nicholas, and half brother to the great Francis Bacon. He studied painting in Italy; but his manner and coloring approaches nearer to the style of the Flemish school. Mr. Walpole observes, that at Culford, where he lived, are preserved some of his works; and at Gorhambury, his father's seat, is a large picture by him in oil, of a cook-maid with a dead fowl, admirably painted. In the same house is a whole length of him, by himself, drawn on paper, his sword and pallet hung up, and a half length of his mother by him.

Bacon (Sir Nicholas), lord keeper of the great seal in the reign of Queen Elizabeth, was born at Chislehurst in Kent, 1510, and educated at Cambridge; after which he travelled into France, and visited Paris. On his return, he settled in Gray's Inn, and quickly distinguished himself so much, that on the dissolution of the monastery of St. Edmund's Bury, in Suffolk, he had a grant from king Henry VIII. of several manors. Two years after he was made attorney in the court of Wards, a place both of honor and profit. In this office he was continued by Edward VI. and in 1552 he was elected treasurer of Gray's Inn. His great moderation and consummate prudence preserved him through the dangerous reign of queen Mary. In the very dawn of that of Elizabeth he was knighted; and in 1558, the great seal of England being taken from archbishop Heath, was delivered to him with the title of lord keeper, and he was made one of the queen's privy council. He had a considerable share in the settling of religion: as a statesman he was remarkable for a clear head and deep counsels: but his great parts and high preferment were far from raising him in his own opinion, as appears from the modest answer he gave queen Elizabeth, when she told him his house at Red-grave was too little for him: 'Not so, madam,' returned he, 'your majesty has made me too great for my house.' After having held the great seal more than twenty years, this able statesman and faithful counsellor met with his death by falling asleep in his room with a window open, and the current of fresh air blowing in upon him. He awoke very ill, and was immediately removed into his bed-chamber, where he died in a few days, i. e. on the 26th of February, 1578-9. He was buried in St. Paul's, where a monument was erected to him, which was destroyed by the fire in 1666. Sir Nicholas was the first lord keeper that ranked as lord chancellor. He was twice married; by his first wife he had three sons and three daughters; and by his second, two sons, Anthony and Francis. Sir Nicholas left several manuscripts, which have never been printed.

Bacon (John), an ingenious sculptor, born in Southwark in 1740. He very early manifested an inclination for drawing, which was encouraged by binding him as an apprentice to a manufacturer of china, at Lambeth, when about fifteen years of age. Here a considerable part of his employment was to paint on porcelain, in which he improved himself so much, in forming small ornamental pieces, that within two years all the models of the manufactory were committed to him. This situation also afforded him an opportunity of seeing various models executed by other artists, which were sent to a neighbouring pottery to be burnt. In 1758 he obtained a premium from the society for the encouragement of the arts, for a small figure of Peace, after the manner of the antique; and eight different premiums afterwards for other figures. Before his apprenticeship was out, he formed a design of making statues in artificial stone, which he afterwards perfected, and which is still carried on in a manufactory in the New Road, with suc-

cess. He first began to work in marble about 1763, and soon invented an instrument for transferring the form of the model to the marble (getting out the points as artists call it), which other sculptors have since adopted. In 1769 he received the first gold medal bestowed by the Royal Society, and next year was chosen an associate. The exhibition of his statue of Mars greatly increased his reputation; and Dr. Markham, since archbishop of York, employed him to make a bust of the king, to be placed in the hall of Christ Church College, Oxford. While he was modelling this bust, his majesty asked him 'if he had ever been out of the kingdom;' and receiving an answer in the negative, said, 'I am glad of it, you will be the greater honor to it.' By the execution of this work he obtained the royal patronage, and was employed to form another for the University of Gottingen. In 1777 he was engaged in preparing a model of a monument, to be erected in Guy's hospital to the memory of the founder, which he executed in such a manner, as recommended him to that of Lord Chatham, at Guildhall. In 1778 he became a royal academician, and finished a handsome monument to the memory of Mrs. Draper, which is in Bristol cathedral. From this period, his works are so numerous, that we can only mention a few of the principal:—Two groups for the top of Somerset-house; a statue of Judge Blackstone, for All Soul's College, Oxford; another of Henry VI. for Eton College; Lord Chatham's monument in Westminster Abbey; and Dr. Johnson's and Mr. Howard's in St. Paul's cathedral. He died of an inflammation in his bowels, in 1799, and left a widow and eight children. He was a man of most excellent character, and of his religious principles, let the inscription which he ordered to be placed over his grave testify: 'What I was as an artist, seemed to me of some importance while I lived; but what I really was, as a believer in Christ Jesus is the only thing of importance to me now.' Mr. Bacon also possessed respectable literary talents.

Bacon, *n. s.* probably from baken, that is, dried flesh. The flesh of a hog salted and dried.

No wine ne drank she, neyther white ne red,
Hire bord was served most with white and black
Milk, and brown bred, in which she fond no lack,
Seinde *bacon*, and sometime an ey or twey;
For she was as it were a manner dey! *Chaucer.*

When it had stabbed or broke a head,
It would scrape trenchers or chip bread;
Toast cheese or *bacon*, tho' it were
To bait a mouse-trap it would not care.
Hudibras.

High o'er the hearth a chine of *bacon* hung,
Good old Philemon seized it with a prong,
Then cut a slice. *Dryden.*

Bacon, the flesh of swine, salted, dried, and generally, in this country, smoked. It is a considerable article of commerce: we shall describe the most approved methods of preserving it; viz. that adopted in Somersetshire. The last three months of the year are selected as best adapted for curing bacon here. When a hog is killed for bacon, the sides are laid in large wooden troughs, and sprinkled all over with bay salt; thus they are left for twenty-four hours, to drain away the blood and the superfluous juices. After this first preparation, they should be taken out, wiped very dry, and the drainings thrown away. Next some fresh bay-salt, well heated in a large iron frying-pan, is to be rubbed over the meat, until it has absorbed a sufficient quantity, and this friction repeated four successive days, while the meat is turned only every other day. If large hogs are killed, the flitches should be kept in brine for three weeks, and, during that period, turned ten times, then taken out, and thoroughly dried in the usual manner; for, unless they be thus managed, it is impossible to preserve them in a sweet state, nor will their flavor be equal to those properly cured.

As the preservation of the salt used in this process, when carried on to a great extent, may be an object of economy, the following method may be adopted for recovering the saline matter contained in these drainings, or in any other brine; it was communicated by a person who had seen it practised on the continent, where culinary salt is sold at a considerable price. He first added such a quantity of boiling-water, to the brine or drainings, as was sufficient to dissolve all the particles of the salt. This solution he then placed in either an iron or earthen vessel, over a fire, which, by boiling, forced all the feculent animal particles to the top, so that they were carefully removed by a perforated ladle. After the liquid had become clear, it was set aside for twenty-four hours, in a cool place, that the coloring matter might subside. But, as the combination it had formed with the boiled liquor was very tenacious, he contrived two different ways of separating it: 1. A solution of alum in water, one pint to an ounce of that substance was gradually dropt into the cold liquor, in the proportion of a table-spoonful of the former to every gallon of the latter; and the whole allowed to stand for several hours; or, 2. If time and circumstances would permit, he filtered the liquor by means of long flannel slips, cut longitudinally by the web, but previously soaked in another strong and perfectly clear solution of salt; these slips were so immersed into the colored fluid that the projecting external end reached another vessel, which had been placed much lower than that containing the brine, or drainings. When these particulars were properly attended to, the absorbed liquor became almost colorless, and pellucid. Having thus procured a clear liquid solution, nothing more was required than to evaporate it to dryness, in order to reproduce the salt in its original granulated form. This process may be imitated without any difficulty, and at very little expense. Dr. Willich, from whose Domestic Encyclopædia we now quote, says, the second method of discharging the color is preferable; as by this no alum will be required, which only contaminates the salt.

Bacon, the service of the, a custom, mentioned by our old historians and law-writers; as well as in the Spectator, as held in the manor of Whichenacre in Staffordshire, and in the priory of Dunnow in Essex. In the former of these places, by an ancient grant of the lord, a flitch of bacon, with half a quarter of wheat, was to be given to every married couple who could swear that having been married a year and a day, they

would never within that time have once exchanged their mate for any other person on earth, however richer, fairer, or the like. But they were to bring two of their neighbours with them to attest that they swore the truth. On this the lord of another neighbouring manor of Rudlow, was to find a horse, saddled, and a sack to carry the bounty in, with drums and trumpets, as far as a day's journey out of the manor; all the servants being summoned to attend, and pay service to the bacon. The bacon of Dunmow, first erected under Henry III. was on much the same footing; but the tenor of the oath was only that the parties had never once repented their connexion, or wished themselves unmarried again.

BACON, a town of Persia, in the province of Seistan, eighty miles N. N. E. of Zareng.

BACON, a town on the east coast of the island of Luçon.

BACON'S ISLAND, a small island in the Chinese Sea. Long. 113° 5′ E., lat. 11° 13′ N.

BACON-FOSSIL, in modern chemistry, a singular fossil discovered in the parish of Cruwys-Morchard, Devon, a few years since, in the following manner:—Some workmen, in sinking a pond, had arrived at a depth of ten feet from the surface, when they struck upon a spongy substance, which appeared to be a very thick cuticle of a brown color: they soon found pieces of bone and solid fat of the same hue. At length the entire body of a hog was extricated, reduced to the color and substance of an Egyptian mummy: the flesh was six inches thick, and the hair upon it very long and elastic. On proceeding in the work, a considerable number of hogs, of various sizes, were found in different positions; in some places two or three together, in others singly; the bodies, when exposed to the air, still retained their consistency, and the stratum continued for twelve feet; after which the pond, being sufficiently deep, was filled with water. The ground was never known to have been broken up before; but here had formerly been a monastery of Augustine friars. The family which preceded the present possessor has a journal of all remarkable events which have occurred in the parish during three centuries; but there was no entry which could lead to a solution of the phenomenon. The Rev. Mr. Polwhele, who obtained a specimen, mentions, in his History of Devon, that the bed in which the fossils lay was of stiff clay. He describes the piece in his possession to be very light, somewhat spongy, mottled like mottled soap, and evidently of a sebaceous nature. On a slight chemical analysis, it was mostly soluble in spirit of wine, while hot; but separated into white flakes on cooling, in which it resembles spermaceti; but it was easily convertible into soap on being boiled in a fixed alkaline lixivium. 'It is certainly,' he says, 'an animal substance; and, if I may form any judgment from a large specimen which I immediately procured, I think I may safely pronounce it to have been originally hog's-flesh.'

BACONGEN, a town on the west coast of the island of Sumatra. Long. 96° 58′ E., lat. 2° 52′ N.

BACONO, a river of the Caraccas, South America. It runs in the mountains near Truxillo, and serves as a line of demarcation to the provinces of Varinas and Venezuela. Thence passing through the plains, it enters the Guanare, which discharges its waters into the Portugueza. There is a settlement of the same name near its source.

BACONTHORPE, or BACONDORP (John), styled the resolute doctor, a learned monk, born in the thirteenth century at Baconsthorp, in Norfolk. He spent the early part of his life in the convent of Blackney, near Walsingham; whence he removed to Oxford, and thence to Paris; where he obtained degrees in divinity and law, and was esteemed the principal of the Averroists. In 1329 he returned to England, and was chosen twelfth provincial of the English Carmelites. In 1333 he was sent for to Rome; where, we are told, he first maintained the pope's sovereign authority in cases of divorce, but that he afterwards retracted his opinion. He died in London in 1346, with the character of a monk of genius and learning. He wrote, 1. Commentaria seu Quæstiones super Quatuor Libros Sententiarum; and 2. Compendium Legis Christi, et quodlibeta: both which underwent several editions at Paris, Milan, and Cremona. Leland, Bale, and Pits, mention a number of his works never published.

BACOPA, in botany, a genus of plants of the class pentandria, and order monogynia. Its generic characters are CAL. perianth, one-leaved: COR. one-petalled: STAM. filaments, five; antheræ, sagittate: PIST. germ, ovate; style short; stigma, headed: PER. capsule, one-celled; seeds, very many. The only species is the B. aquatica, native of Cayenne. *Linn. Spec. Plant.*

BACOUE (Leo), a French divine of the seventeenth century. He was first of the Protestant persuasion, but afterwards changed to the Roman Catholic faith, turned Franciscan, and was made bishop of Pamiers. He was author of a Latin poem on the education of a prince. He died in 1694, in his ninety-fourth year.

BACRAG, the same with Baccharach wine.

BACRAS, a town of Sennaar, in Africa, twenty-five miles east of Sennaar.

BACRE, a small town in the territory of Sierra Leone. Long. 12° 11′ W., lat. 8° 40′ N.

BACTISHUA (George Ebn), a Christian physician at the court of the caliph Almansor, who sent him as a present 3000 dinars, with three beautiful girls to supply the place of his wife, who was old: Bactishua sent them back, observing that his religion forbad him to have more than one woman for his wife.

BACTRIA, or BACTRIANA, now Chorassan, or Khorasan, an ancient kingdom of Asia, bounded on the west by Margiana, on the north by the Oxus, on the south by Mount Paropismus, and on the east by the Asiatic Scythia and the country of the Massagetæ. It was a large, fruitful, and well-peopled country; containing, according to Ammianus Marcellinus, 1000 cities, though of these only a few are particularly mentioned; of which, that formerly called Maracanda, now Samarcand, is the most considerable. Of the history of this country we know but little. Authors

agree that it was subdued first by the Assyrians, afterwards by Cyrus, and then by Alexander the Great. Afterwards it remained subject to Seleucus Nicator and his successors, till the time of Antiochus Theos; when Theodotus, from governor of that province, became king, and strengthened himself so effectually in his kingdom, while Antiochus was engaged in a war with Ptolemy Philadelphus, king of Egypt, that he could never afterwards dispossess him of his acquisitions. His posterity enjoyed the kingdom for some time, till they were driven out by the Scythians, who possessed Bactria during the reigns of Adrian, Antoninus Pius, &c. The Scythians were in their turn driven out by the Huns and Turks, and these often conquered by the Saracens and Tartars; although they were in possession of this country, in the time of Ladislaus IV. king of Hungary.

BACTRIANS, the inhabitants of Bactria. In ancient times they differed little in their manners from the Nomades; and being near neighbours of the Scythians, who were a very warlike people, the Bactrian soldiers were reckoned the best in the world. Their appearance was very savage; they being of an enormous stature, having rough beards, and long hair hanging down their shoulders. Some authors assert that they kept dogs on purpose to devour such as arrived at extreme old age, or who were exhausted by long sickness. They add, that for all their fierceness, the Bactrian husbands were such dupes to their wives, that they durst not complain of them even for conjugal infidelity, to which it seems the latter were very much addicted.

BACTRIANUS, in zoology, a species of the camel.

BACTRIS, in botany, a genus of plants of the class monœcia, order hexandria. Its generic characters are CAL. spathe universal, one-leaved: COR. one-petalled: STAM. filaments, six; antheræ, oblong: PIST. germ, ovate; style, very short; stigma, headed: PER. drupe, coriaceous, seed-nut, roundish. The species are, 1. B. minor fructibus, &c. seu cocos (quincensis) aculeata, &c. a shrub, native of South America. 2. B. major fructu, &c. seu fructus exoticus, a shrub, native of South America.

BACTRIS, in entomology, a species of bruchus.

BACTROPERATÆ, from *βακτρον*, a staff, and *πηρα*, a bag; an ancient appellation given to philosophers by way of contempt, denoting a man with a staff and a budget. It seems to be of this sect that Paschasius Radbertus speaks, under the corrupt names of Baccoperitæ, or Bacchionitæ, whom he describes as philosophers who, by way of contempt for earthly things, kept nothing but a dish to drink out of; and that one of this order seeing a peasant scooping up the water in his hand, threw away his cup as a superfluity.

BACULARES, a sect of Anabaptists, so called, as holding it unlawful to bear a sword, or any other arms, besides a staff.

BACULARIUS, in writers of the middle age, an ecclesiatical apparitor or verger: who carries a staff, baculus, in his hand, as an ensign of his office.

BACULE, in fortification, a kind of portcullis, or gate, made like a pit-fall with a counterpoise, and supported by two great stakes. It is usually made before the corps du guard, near the gate of a place.

BACULI. See BACILLI.

BACULI STI. PAULI, batoons of St. Paul, a kind of figured stones, of the same substance with those resembling the bristles of some American echini, called by Dr. Plott, lapides Judaica.

BACULO'METRY, *n. s.* From *baculus*, Lat. and *μετρον*. The art of measuring distances by one or more staves.

BACULOMETRY. See GEOMETRY.

BACULOSUS ECCLESIASTICUS, in some ancient laws, is used for a bishop, or abbot, dignified with the pastoral staff, or crozier.

BACULUS DIVINATORIUS, or VIRGULA DIVINA. See BAGUETTE DEVINATOIRE.

BACURIUS, or BATURIUS, king of the Iberians, a people on the side of the Caspian sea. One day being hunting, he lost sight of his company, through a great storm and sudden darkness; upon which he vowed to the God of his christian slave, that if he were delivered, he would worship him alone: the day breaking up immediately, he is said to have made good his promise, and became the apostle of his country.

BAD', *adj.* } *Quoad*, Dut.; Sax. baed;
BAD'LY, *adv.* } Ger. bos; probably connected
BAD'NESS, *n. s.* } with the Lat. *pejus*, worse, and the Heb. *bosch*. Comparative worse; superlative worst. Bad respects moral and physical qualities indiscriminately; whatever offends the taste and sentiments of a rational being, is bad; food is bad when it disagrees with the constitution; the air is bad which has any thing in it disagreeable to the senses or hurtful to the body; books are bad which only inflame the imagination and the passions. In one word, bad is equally descriptive of mental, moral, and corporeal disease, and implies misfortune or delinquency, only from its application. Badly means in the manner of bad. It is always annexed to the action; but never to the quality of things.

'Tis good; though music oft hath such a charm,
To make *bad* good, and good provoke to harm.
Shakspeare.

How goes the day with us? O tell me, Hubert.
Badly, I fear. How fares your majesty? *Id.*

It was not your brother's ill disposition made him seek his death; but a provoking merit, set a work by a reproveable *badness* in himself. *Id.*

Thou may'st repent,
And one *bad* act, with many deeds well done,
May'st cover. *Milton.*

Thus will the latter, as the former, world
Still tend from *bad* to worse. *Id.*

Our unhappy fates
Mix thee amongst the *bad*, or make thee run
Too near the paths which virtue bids thee shun.
Prior.

Daughter of Jove, relentless power,
Thou tamer of the human breast,
Whose iron scourge, and tort'ring hour,
The *bad* affright—afflict the best. *Gray.*

The sun his annual course obliquely made,
Good days contracted, and enlarg'd the *bad*.
Dryden.

Reading was *bad* for his eyes, writing made his head ache. *Addison.*

I did not see how the *badness* of the weather could be the king's fault. *Id.*

There is one convenience in the city, which makes some amends for the *badness* of the pavement. *Id. on Italy.*

BAD, } The preterite of bid.
BADE'. }

Our council was not longe for to seche,
Us thought it was not worth to make it wist,
And granted withouten more avise,
And *bad* him say his verdict as him leste. *Chaucer.*

And for an earnest of greater honour,
He *bade* me, from him, call thee Thane of Cawder. *Shakspeare.*

She thank'd me,
And *bade* me, if I had a friend that lov'd her,
I should but teach him how to tell my story,
And that would woo her. *Id.*

Thus God and nature link'd the general frame,
And *bade* self-love and social be the same. *Pope.*

But thou, O hope, with eyes so fair,
What was thy delighted measure?
Still it whisper'd promis'd pleasure,
And *bade* the lovely scenes at distance hail! *Collins.*

BADAGIS, a town of Persia, in the province of Khorassan, forty miles north of Fusheng.

BADAJOZ, or BADAJOX, a large and strong town, the capital of Estremadura, in Spain. It is seated on an eminence on the south side of the Guadiana, over which there is a bridge of twenty-eight arches, and nearly 1900 feet in length, said to have been founded by the Romans. On this bridge the Portuguese were defeated in 1661, by Don John of Austria. Here are also five ancient gates, but the public buildings, with the exception of the cathedral, merit no notice: the only manufacture is hats. Population 14,300. The Roman Pax Augusta, of which Badajoz is supposed to be a corruption, stood on much higher ground. Badajoz has always been regarded as an important barrier against Portugal; from the frontiers of which it is little more than four miles. The Goths captured it in the fifth century; the Moors in the eighth, and Alphonso of Castile reconquered it in 1230. Lord Wellington invested Badajoz on the 18th of March, 1812; and breaches having been made on the 6th of April, it was assaulted on the same night. General Picton established himself in the castle; but after repeated attempts upon the town itself, the British troops were obliged to retire: the possession of the castle, however, so far commanded the works, that the French commandant thought it advisable to surrender: 1200 men out of a garrison of 5000, were killed or wounded during the siege, and of the besiegers, British and Portuguese, upwards of 4000. But the possession of Badajoz, in conjunction with Ciudad Rodrigo, secured the defence of Portugal, and was thought well worth the price paid for it. The bishop of Badajoz, suffragan to the archbishop of St. Jago, has under his inspection a cathedral chapter, an archdeaconry, and fifty parishes. The chapter is composed of seven dignitaries, twelve canons, four prebendaries, and six subprebendaries. There are besides in the town five parish churches, seven monasteries, five nunneries, and five hospitals. It is the residence of the captain-general and intendant of Spanish Estremadura, a civil and military governor, a royal lieutenant, an alcade major, and a contador. It has fourteen companies of militia, a garrison, two forts (Cristobal and las Pardaleras), and an arsenal. It is eighty-two miles N. N. W. of Seville, forty-nine S. of Alcantara. Long. 6° 47′ W., lat. 38° 49′ N.

BADALONA, or BADELONA, a sea-port town of Spain, in Catalonia, with a citadel. Earl Peterborough landed here with the arch-duke Charles in 1704. Four miles north-east of Barcelona. Long. 2° 7′ E., lat. 41° 25′ N.

BADANACOUPY, a town of the Mysore, Hindostan, twenty-eight miles south of Seringapatam.

BADAR, a town of Hindostan, in the province of Bejapour, on the south side of the Krishna, thirty miles south of Mirjee. Long. 75° 32′ E., lat. 16° 40′ N.

BADASKY, a town of Siberia, in the government of Irkutzk, on the river Angara, eighty miles N. N. W. of Irkutzk.

BADCOCK (Samuel), the son of a reputable butcher, was born at St Molton, Devonshire, in 1747, and bred a dissenting clergyman. He was first pastor at Beer-Regis in Dorsetshire, and afterwards at Barnstaple, for about ten years. Here meeting with some of Dr. Priestley's publications, he paid the Dr. a visit, and established a correspondence with him. Upon investigation of the subject, however, he found it impossible to embrace Unitarianism. In 1777 he removed to his birth-place, and in 1780, engaged as a writer in the Monthly Review. The controversy then agitated by Dr. Priestly, Price, and others, respecting the materiality of the soul, led him to publish his thoughts upon the subject, in a pamphlet entitled, A Slight Sketch of the Controversy between Dr. Priestly and his Opponents; which was repeatedly quoted with great approbation. In 1781 he wrote a poem, entitled the Hermitage, and reviewed Madan's Thelyphthora, greatly to the satisfaction of the public. In the controversy concerning the authenticity of Rowley's Poems, he took the negative side, and displayed his usual ingenuity. In the Monthly Review for 1785, he attacked Dr. Priestly's History of the Early Opinions relative to Jesus Christ, with such strength of reasoning, that the doctor, without knowing his antagonist, complimented him in his Reply, as a formidable and respectable antagonist.' Being applied to by Dr. White, to assist him in completing his Bampton lectures, he wrote the greater part of the first, third, fourth, fifth, seventh and eighth; with part of the notes subjoined to them. In 1787, having expressed an intention of conforming to the established church, he was ordained in Exeter cathedral by his friend bishop Ross; who gave him the order of deacon and priest, on two succeeding Sundays. He died May 19th, 1788, at the house of his friend Sir John Chichester, bart. in May-fair. His disposition was gentle, humane, and lively; his judgment acute and comprehensive; and his literary attainments great and various. He was equally eminent as a preacher and a writer.

BADDAMMY, a town of Hindostan, in the province of Bejapour, in the territories of the Mahrattas. It is a place of some strength. Thirty miles south-east of Merritch. Long. 74° 54 E., lat. 16° 6′ N.

BADDERLOCKS, in natural history, a Scottish name given to the fucus esculentus, or eatable sea-weed. It is about four feet long, and seven or eight inches wide, but varies in length from three yards to a foot, and in breadth, from a foot to two inches; the substance is thin, membranaceous, and pellucid; the color, green or olive. This fucus is eaten in the north of Scotland both by men and cattle, and is in its greatest perfection in September; that which is eaten by the common people about Edinburgh is the F. Palmatus, Dulse, or Dils, which see.

BADEAUT, Loch, or, as it is erroneously spelt in some maps, Badwell, a good harbour of Scotland, on the coast of Sutherland, in the parish of Edderachylis; where shipping of all sizes can enter, and moor close to the land, in perfect safety.

BADEN, in geography, formerly a margravate of Germany, in the circle of Suabia, stretching along the east bank of the Rhine, and forming, at present, the most important part of a grand duchy of the same name. It consisted of two divisions, viz. Baden-Baden, and Baden-Durlach; of which the former, and part of the latter, formed a compact territory, surrounded by Spire, Wirtemberg, the bishopric of Strasburg, and the Rhine. The country is for the most part level, but intersected on the east by branches of the hilly Schwartzwald, or Black Forest. The most considerable part of Baden-Durlach lay disjointed and insulated towards the south; and that part in the upper margraviate lying in the direction of Bale, was covered with mountains, except in the immediate vicinity of the Rhine. These divisions, taken together with the county of Eberstein, include a space of 1186 square miles, and a population of more than 180,000 inhabitants, independent of the military. Within the limits of this margravate were seventeen towns, fourteen boroughs, and upwards of five hundred villages and hamlets; the whole yielding an annual revenue of nearly £150,000 sterling. The country abounds with wood, wine, iron, cobalt, and silver. The Rhine which flows over the whole surface, from north to south, supplies abundance of excellent salmon. Whilst the flax, hemp, linen, and fiuits, which are found in considerable quantities, not only supply the aggregate home consumption of the inhabitants, but form important articles of exportation. Silk has also been cultivated here; but not with any great advantage. The principal manufactures are of cloth, stuffs, stockings, jewellery, &c. There is also one of steel, at Pfortzheim, and one of beautiful earthenware at Durlach.

The house of Baden is descended from Herman, second son of Berthold I. duke of Zahringen, who died A. D. 1074. About the middle of the sixteenth century it split into the two lines of Baden-Baden, and Baden-Durlach, in which state it continued for some time; but, on the extinction of the former, in 1771, the latter succeeded to the whole inheritance. At the diet of the empire, the margrave of Baden had three votes in the council of princes, and one in the bench of counts, in virtue of his title as count of Eberstein. Before the memorable revolution in France, this prince possessed the following territories: his patrimonial lands, different territories in Suabia and Bohemia, portions of the county of Sponheim-Graftenstein, together with the bailiwic of Roth on the French side of the Rhine, the lordships of Rodemachern and Hespringen, in Luxemberg, and several estates in Alsace; but when the possessions on the left bank of the Rhine were ceded to France by the peace of Luneville, concluded on the 9th of February, 1801, the German princes were indemnified for their losses by the secularisation of ecclesiastical possessions; the reduction of the imperial cities, and other alterations on the right bank of the Rhine, and the margrave of Baden on that occasion acquired the bishopric of Constance, part of Bale-Strasburg, and Spire, several bailiwics of the Lower Palatinate, and in Hesse, the lordship of Lahr, a number of secularised abbeys, and several imperial towns, together with the title of elector, and three additional votes at the diet. His augmented possessions at this time contained a territory of 2770 English square miles, and a population of 410,000 inhabitants, yielding in annual revenue £372,000 sterling; and, in the year 1803 were separated into three divisions, viz. the margraviate, the palatinate, and the upper principality.

When the coalition was formed against France in 1805, Bavaria, Wirtemberg, and Baden, were the allies of Buonaparte; and after the defeat of the confederated powers at Austerlitz had led to the peace of Presburg, and the subsequent formation of the Rhenish confederation in 1806, these states participated in the ceded possessions. Baden was erected into a grand duchy, and in exchange for the towns and territory of Biberach, which had been reduced from its imperial dignity, and assigned to Baden, in 1802, and now ceded by that government to Wirtemberg, she received the following accessions, the towns and territories of Billingen and Baeunlingen, the greater part of the Brisgau, the principality of Heitersheim, the county of Bondorf, the district of Ortenau, the commandery of Bengen, and the possessions of the provincial nobility; also the sovereignty over a great part of Furstenberg, Salm-Krautheim, and Loevenstein-Werheim, as well as over the whole of the Clettgau and Thengen. The county of Nellenburg was shortly aftewards added, together with several adjacent territories, and by means of new acquisitions and interchanges, the detached districts on the lake of Constance were rendered contiguous to the other dominions. These acquisitions raised the importance of Baden, and were all guaranteed to the grand duke, in 1815, by the Congress at Vienna.

Baden, in its present state, therefore, remains to be considered as a grand duchy of Germany, including the territories already described. Its division into a landgraviate, a margraviate, and a palatinate, or the provinces of the Upper, Middle, and Lower Rhine, was superseded in 1809, two years after its commencement, by the following distribution into nine circles, thus peopled, according to Mr. Hassel's statistics:

No.	Circles.	Population.	No.	Chief Towns.	Population.
1	The Lake (Seekreis) . .	89,604	1	Constance	4,503
2	The Danube	72,735	2	Villingen	3,316
3	The Weisen	116,954	3	Lorrach	1,906
4	The Treisam	125,807	4	Freyburg	10,108
5	The Kinzig	117,640	5	Offenburg	2,888
6	The Murg	85,112	6	Rastadt	4,204
7	The Pfinz and Enz . . .	131,518	7	Durlach	3,916
8	The Neckar	166,818	8	Manheim	18,213
9	The Maine and Tauber .	95,382	9	Wertheim	3,227
		1,001,630			52,281

For the general superintendance of the circles are established two divisions of the civil government, at Manheim and Freyburgh, besides which each of the circles individually has a director and two counsellors of its own. For the administration of justice there are inferior courts, and above them three courts of appeal at Freyburg, Rastadt, and Manheim, together with an upper court at the town last mentioned, analagous to what is called in France the 'Court of Cassation.' The French code, also commonly called the code of Napoleon, was introduced during the usurpation of Buonaparte, and is still in force, with a few modifications. The seat of the government is held at Carlsruhe, where the Grand Duke resides, under the designation of Royal Highness. There are four ministers connected with the executive part of government, viz. those of the interior, finance, justice, and war. The legislative part is conducted by the Baden cabinet, called the ministerial conference, of which the Grand Duke, hereditary duke, or, failing both, the oldest minister is president. The government has of late manifested considerable solicitude for the welfare of the people, by the formation of roads, the abolition of feudal vassalage, the establishment of an excellent system of forest laws, and above all, by the erection and endowment of schools, academies, and public libraries. The principal of these are at Heidelberg, Manheim, Baden, and Carlsruhe, Heberlingen, Offenburg, Rastadt, Bruchsal, &c. Religious toleration is also universally granted, although the religion of the Grand Duke and national establishment is Lutheranism.

M. Hassel thus enumerates the different religions:—

Roman Catholics	620,000
Lutherans	305,000
Calvinists	61,000
Jews	15,080
Mennonites	1,290

The surface of Baden is beautifully diversified by every variety of landscape, hill and dale, plain, and mountain, breaking on the sight in regular succession. The climate is agreeable, and the soil, generally speaking, fertile; the only part incapable of cultivation being a portion of the Black Forest, in Brisgau. The country is intersected by the Maine and the Neckar, and bounded on the west by the Rhine; tributary to these are numerous smaller rivers and streams, from several of which the circles derive their names. The country bordering upon Switzerland is mountainous, and a chain runs from the confines of that division through the southern part of Baden into the kingdom of Wirtemberg. It afterwards forms a part of the separating boundary between them, and is joined by another chain stretching from east to west, over the whole breadth of the southern region.

Perhaps one of the most beautiful portions of this grand duchy is the country lying round Heidelberg and its suburbs. The town itself exhibits a romantic site, mild air, delightful prospects, curious and extensive subterranean walks, which have been lately closed, an ancient electorial palace; but the environs, if possible, are still more beautiful. Manheim is also well situated, and forms a delightful appearance at the confluence of the Neckar and the Rhine. At the commencement of the seventeenth century, it was only a pleasant village, but being shortly after fixed upon as the residence of the elector, and seat of the court, it became a flourishing place, although when the court was removed, in 1777, the town considerably declined. The palace of the Grand Duke, the tower of the observatory, the custom house, churches, and other public buildings, together with the gallery of paintings, cabinet of antiquities, &c. are objects worthy of notice; as are also the bridge of boats over the Neckar, and the flying bridge over the Rhine. The horses of Baden are an excellent breed. In other respects the domestic and wild animals resemble those of the other states of Germany.

Baden, a town of Germany, in the grand duchy of the same name, formerly the capital of the upper margraviate, but included, since the the year 1810, in the circle of the Murg. The town is seated among hills, on rocky and uneven ground, which renders the streets inconvenient and crooked. It derives its name from its baths, the word bad, in German, signifying bath. These baths were known to the Romans before the Christian era, and are supplied by upwards of 300 mineral springs, the waters of which are strongly impregnated with sulphur, salt, and alum. Some of these springs are hot, and are accounted good in nervous cases. Baden contains a population of 2000 inhabitants, and is now the head of an upper bailiwic. It has a lyceum, with several flourishing manufactures of earthenware, potash, candles, soap, and leather. The ancient castle, now in ruins, stand-

ing on a neighbouring eminence, overlooks the river Oelbach, commanding the pleasing and extensive prospects of a beautiful wine country. The town is twenty-two miles N. E. of Strasburg, and forty S. S.W. of Heidelburg. Long. 8° 18′ E., lat. 48° 46′ N.

Baden, a small town of Lower Austria, seated on the rivulet of Schwocha, in a plain not far from a ridge of hills which runs out from the mountain Cetius. It is much frequented by the people of Vienna, and the neighbouring region, on account of its warm baths, which are said to be twelve in number, and beneficial in disorders of the head, as also for the gout, dropsy, and most chronic distempers. It contains three churches, 250 houses, and 1500 population, is surrounded by walls, and is twelve miles S.S. W. of Vienna. Long. 16° 14′ E., lat. 48° 2′ N.

Baden, a district of Switzerland, in the canton of Aargau, bounded by Suabia on the north, Zurich on the east, Lucerne on the South, and Aargau proper on the west. It is thirty miles in length, and from eight to twelve in breadth, including a territory of 176 square miles; and, according to an enumeration made in 1803, contained nearly 47,000 inhabitants, which have since increased considerably. This country is one of the finest in Switzerland, and is watered by three navigable rivers, the Limmet, the Russ, and the Aar. It is divided into three parts and eight bailiwics, producing great abundance of corn, fruit, and wine. Before the peace of 1712, this district formed a separate canton, but when the articles of treaty were concluded between Zurich and Berne, it was divided among these cantons and that of Glaris. The two first seizing upon seven-eighths, and the last the one-eighth then remaining. In the constitution of 1798 it was restored to its original independence, but in the re-organization of the cantons by the emperor Napoleon, in 1803, it was united to that of Aargau, in connexion with which it has ever since remained.

Baden, the capital of the above district, is a small town containing about 1700 inhabitants, and carrying on a considerable trade. It is seated on the side of the Limmet, in a plain flanked by two hills, between which the river runs. This city owes its rise to its baths, which were famous before the Christian era, and known to the Romans by the name of Thermæ Helveticæ. Several monuments of antiquity have been found here, particularly in 1420; when the inhabitants, on opening the large spring of the baths, found statues of several heathen gods, made of alabaster, Roman coins, of Augustus, Vespasian, Decius, &c. made of bronze, and several medals of the Roman emperors, of gold, silver, copper, and bronze. There are two churches in Baden; one of which is collegiate, and makes a good appearance, and the other a monastery of the Capuchins, near the town-house. The inhabitants are rigid Roman Catholics, and formerly behaved in a most insolent manner to the Protestants, but they are now obliged by their masters to be more submissive. In this town were held formerly the general assemblies of the canton, who met in a handsome room, fitted up for their reception within the Capuchin's monastery; here, too, the negociations for peace between France and the empire, which had been opened at Rastadt, were brought to a close, on the seventh of September, 1714. The town at present chooses its own magistrates, and enjoys other privileges. The governor resides in a fine castle on the other side the Limmet, erected after the destruction of the old edifice in 1712; a handsome wooden bridge hangs over the river, forming a beautiful entrance to the castle, and in front of this magnificent residence is a stone pillar erected in honor of Trajan, who paved a road in this country, eighty-five Italian miles in length. The baths, which are on each side the river, are a quarter of a league from the city. Joining to the small baths there is a village, and to the village a town, which may pass for a second Baden. It is seated on a hill, of which the ascent is steep. There the baths are brought into inns and private houses, by means of pipes, which are about sixty in all. There are also public baths in the middle of the town, from a spring which rises in the street, where the poor bathe gratis, but they are exposed quite naked to all that pass by. All the baths are hot, and one to so great a degree as to scald the hand. The springs, which originate in a place called Ort-Zum-Baden, are eight in number, and are impregnated with a great deal of sulphur, accompanied with a little alum and nitre. The waters are used for drinking, as well as bathing, and are said to cure all diseases from a cold cause, head-aches, vertigos, &c. They strengthen the senses, cure diseases of the breast and boweis, asthmas, and obstructions, and are peculiarly excellent for diseases of women. Baden is about fourteen miles N. W. of Zurich, twenty-seven S. E. of Basle. Long. 8° 12′ E., lat. 47°-24′ N.

Baden, a parochial village of Switzerland, in the Valais, jurisdiction of Leuck. Here is the celebrated bath commonly called the bath of Leuck, or Valais, which is of heat sufficient to boil an egg, and the water of which is used by the inhabitants both for the purposes of bathing and drinking.

BADENOCH, a large district of Inverness-shire, of which it is the most easterly part, bounded by Inverness on the north, Moray on the east, Athol on the south, and Lochaber on the west. It extends about thirty-three miles in length from east to west, and twenty-seven from north-east to south-west, where it is broadest. It has no considerable town, and is very barren and hilly, but abounds with deer and other kinds of game.

BADENS (Francis), a historical and portrait painter, was born at Antwerp in 1751, and first initiated in the art by his father. Having visited Rome, he formed an excellent taste for design and a manner exceedingly pleasing. On his return, he was usually distinguished by the name of the Italian painter. His touch was light and spirited, and his coloring warm; and he was the first who introduced a good taste in coloring among his countrymen. While his acknowledged merit was rewarded with every public testimony of esteem, he received an account of the death of his brother, who had been assassinated on a journey; and the intelligence affected him so

violently, that it occasioned his own death suddenly, in 1603.

BADERALLY, a town of Hindostan, in the province of Bejapour, seventeen miles south-west of Raibaug.

BADEW (Richard de), the original founder of Clare-hall, Cambridge. He was born at Badow, in Essex; and in 1326 was chancellor of Cambridge, when he laid the foundation of a building to which he gave the name of University-hall. This being afterwards burnt down, was rebuilt by a daughter of Sir Gilbert de Clare, earl of Gloucester, and named Clare-hall.

BADEY, a town of Persia, in the province of Khorassan, 140 miles north-west of Herat.

BADGE, *v. a.* & *n. s.* A word of uncertain etymology; derived by Junius from bode or bade, a messenger, and supposed to be corrupted from badage, the credential of a messenger; but taken by Skinner and Minshew from *bagghe*, Dut. a jewel, or *bague*, Fr. a ring. It seems to come from *bajulo*, Lat. to carry, The substantive denotes a mark; or ornament worn to show the relation of the wearer to any person or cause. It also signifies a token of rank or character. An outward and visible distinction, either honorable or disgraceful.

But on his breast a bloody cross he bore,
The dear resemblance of his dying lord;
For whose sweet sake that glorious *badge* he wore.
Spenser.

A savage tigress on her helmet lies;
The famous badge Clarinda us'd to bear. *Fairfax.*
Mark the *badge* of these men, then say if they be true. *Shakspeare.*
Might I but know thee by thy household *badge*. *Id.*
Sweet mercy is nobility's true *badge*. *Id.*
Your royal father's murdered——
——Oh, by whom?——
Those of his chamber, as it seem'd had done't;
Their hands and faces were all *badg'd* with blood,
So were their daggers. *Id.*
Let him not bear the *badges* of a wreck,
Nor beg with a blue table on his back. *Dryden.*
The outward splendour of his office is the *badge* and the token of that sacred character which he inwardly bears. *Atterbury.*

BADGE, in naval architecture, a sort of ornament placed on the outside of small ships, very near the stern, containing either a window for the convenience of the cabin, or a representation of it. It is commonly decorated with marine figures, martial instruments, or such like emblems.

BADGELESS, *adj.* From badge and less. Having no badge.

Whiles his light heels their fearful flight can take,
To get some *badgeless* blue upon his back.
Bishop Hall's Satires.

BA'DGER, *n. s.* Perhaps from the Lat. *bajulus*, a carrier; but by Junius derived from the badger, a creature who stows up his provision. One that buys corn and victuals in one place, and carries it unto another.'—*Cowel.*

BA'DGER, *n. s.* From *bedour*, Fr. *melis*, Lat. An animal that earths in the ground, and used to be hunted.

That a brock, or *badger*, hath legs of one side shorter than the other, is received not only by theorists and unexperienced believers, but most who behold them daily. *Brown.*

BADGER, in zoology, the English name of a species of ursus. See URSUS.

BADGER-BAITING, or BADGER-HUNTING. The badger has suffered more perhaps from vulgar prejudices than any other animal. He has been accused of destroying lambs and rabbits: the first unquestionably without foundation, and it is uncertain whether the last charge be better supported; for many naturalists maintain that his sole food consists of roots, fruits, grass, insects, and frogs. From this general and double accusation, however, the harmless badger has been selected to make sport, as it is called, for the vulgar, in both hunting and baiting.

Hunting the badger is in general only performed by moonlight: the badger, from his natural habits, being never to be found above-ground by day. In this sport the hunters are obliged to oppose art to cunning, and obtain by stratagem what they cannot effect by strength. At a late hour in the evening, when the badger is naturally concluded to have left his kennel or his castle in search of food, some of the party, as previously adjusted, proceed to place a sack at length within the burrow, so constructed that the mouth of the sack directly corresponds with the mouth of the earth, and is secured in that position by means of a willow hoop, which, from its pliability, readily submits to the form required. This part of the business being completed, the parties withdrawn, and the signal whistle given, their distant companions lay on the dogs, either hounds, terriers, lurchers, or spaniels, encouraging them through the neighbouring woods, coppices, and hedge-rows; which the badgers abroad no sooner find, than being alarmed, and well knowing their inability to continue a state of warfare so much out of their own element, instantly make to the earth for shelter; where, for want of an alternative, and oppressed with fear, they rush into certain destruction, by entering the sack: being entangled in which, they are soon secured by those who are fixed near the spot for that purpose. If the badger escape by the ill-construction or accidental falling of the sack, and safely enter the earth, digging him out is not only a very laborious but very precarious attempt; for the badger, from instinctive ingenuity, will be generally found to have formed his retreat before he can be reached: to render which the more easy, he usually constructs his kennel among the roots of some old pollard, in the banks of moors, or underneath some hollow tree; from the spreading root branches of which the burrows run in such various and perplexing directions, that his assailants are often compelled, after tiring themselves by digging fifteen or twenty feet, to relinquish the pursuit; corroborating the opinion of the common people, that in a loose and sandy soil badgers can make a way as fast as their hunters can pursue them: whence drawn-battles in such situations are very common results.

Badger-baiting is a different sport, and if possible of a lower description. It consists in attacking the animal at a distance from his burrow, with dogs of almost any kind; but most successfully with the terrier. The badger is so rapid in his motions, that the dogs are often desperately

wounded, and compelled to give up the contest. The looseness and thickness of the badger's skin are admirably contrived for his advantage; in consequence of the latter, and especially in conjunction with the coarseness and toughness of his hair, it is difficult for the dogs to lay hold of him; and in consequence of the former, he finds great facility of escaping from their grasp when they have succeeded. These sports have given rise to a very expressive proverb of 'badgering a man with a request' for payment of debts, &c.

Ba'dger-legged. From badger and legged. Having legs of an unequal length, as the badger is supposed to have.

His body crooked all over, big-bellied, *badger-legged*, and his complexion swarthy. *L'Estrange.*

Badgum, a town of Hindostan in Dowlatabad, six miles S. S. W. of Oudighir.

BADHUNTOUL; Gael. a den of refuge; a place in the parish of Fordice, in Banffshire, in former times used as a place of refuge from the Danish invasions.

BADIA, in conchology, 1. A species of cyprea having an oblong gibbous shell.—Gmelin. 2. A species of helix, called by Born, helix ungulina; and, 3. A species of patella.

Badia (D.), a Spaniard, who devoted himself, in 1803, and four or five following years, to the profession of Mahommedanism, as a means of exploring Mahommedan countries. He assumed the name of Ali Bey el Abassi, and submitted, it is said, to the most distinguishing rite of Islamism, the better to pursue his plans. Mr. Burckhardt writes thus, respecting him, from Aleppo: 'He called himself Ali Bey, and professed to be born of Tunisian parents in Spain, and to have received his education in that country. Spanish appears to be his native language, besides which he spoke French, a little Italian, and the Moggrabeyan dialect of Arabic, but badly. He came to Aleppo by the way of Cairo, Yaffa, and Damascus, with the strongest letters of recommendation from the Spanish government to all its agents, and an open credit upon them. He seemed to be a particular friend of the Prince of Peace, for whom he was collecting antiques: and from the manner in which it was known that he was afterwards received by the Spanish ambassador, at his arrival at Constantinople, he must have been a man of distinction. The description of his figure, and what is related of his travels, called to my recollection the Spaniard Badia, and his miniature in your library. He was a man of middling size, long thin head, black eyes, large nose, long black beard, and feet that indicated the former wearing of tight shoes. He professed to have travelled in Barbary, to have crossed the Lybian desert, between Barbary and Egypt, and from Cairo to have gone to Mecca and back. He travelled with eastern magnificence, but here he was rather shy of showing himself out of doors: he never walked out but on Fridays, to the prayers of noon in the great mosque. One of the before-mentioned dervises told me that there had been a great deal of talking about this Ali Bey, at Damascus and Hamar: they suspected him of being a Christian, but his great liberality and the pressing letters which he brought to all people of consequence, stopped all further inquiry. He was busily employed in arranging and putting in order his journal during the two months of his stay at Aleppo.' His travels were published at London and in Paris, in 1814, in 2 vols. 8vo. under his assumed name. He is now known to have been an agent of Godoy, the Prince of the Peace, employed at the instigation of Napoleon. He died in Spain shortly after his return to Europe.

Badia, La, a town of Italy, on the Adigetto, at the place where it branches from the Adige. It is small and open, but well-built, populous and wealthy; and was formerly called Castello Piazzone, having two castles. The Adige is here crossed by a handsome bridge five miles from Legnano, and fifteen W. S. W. of Rovigo.

BADIAGA, in the materia medica, the name of a sort of spongy plant, common in the shops of Moscow and some other northern kingdoms. It is used to take away the livid marks, occasioned by blows and bruises, which the powder is said to do in a night's time. We owe the knowledge of this medicine, and its history, to Burbaum. He observes, that the plant is always found under water, and is of a very peculiar nature. It somewhat resembles the alcyonium, and somewhat the sponge, but differs from both, it being full of small round granules, resembling seeds. It is of a loose, light, and spongy structure; is made up of a number of fibres of an herbaceous matter, and is dry, rigid, and friable between the fingers. Such is the generic character of the badiaga, of which this accurate observer has found three different species. Linnæus makes it a species of sponge.

BADIANA, Badiane, or Bandian, the seed of a tree which grows in China, and smells like anise seed. The Chinese, and the Dutch in imitation of them, sometimes use the badiana to give their tea an aromatic taste.

BADIGEON, in joiner work, saw-dust mixed with strong glue, wherewith they fill up the chaps and other defects in the wood after it is wrought.

Badigeon, in statuary, a mixture of plaster and free-stone well ground together, and sifted; used by statuaries to fill up the little holes, and repair the defects in stones, whereof they make their statues and other work.

BADILE (Antonio), history and portrait painter, born at Vienna in 1480, was an eminent artist: but derived greater honor from having two such disciples as Paolo Veronese and Baptista Zelotti. He died in 1560. His coloring, especially of his carnations, was beautiful; and his portraits preserved the perfect resemblance of real life.

BADINAGE, foolery, buffoonery.

BADIS, a fortress of Livonia, subject to Russia, twenty miles east of Revel.

BADITES, in botany, the Nymphœa, or clava Herculis: the root of which, according to Marcellus Empiricus, bruised and eaten with vinegar for ten days by a boy, makes him an eunuch without excision.

BADKIS, or Pasin, a town of Persia in the province of Khorassan, thirty-six miles north of Herat. Long. 60° 27′ E. lat. 35° 30. N.

BADONG, a district of the island of Balli, where the Dutch had a small settlement, afterwards taken by the British.

BADOO, two towns in the kingdom of Woolli, in Africa. They both united their strength in enforcing the payment of custom from Mr. Park.

BADOUCE, in natural history, the East Indian name of a fruit, very common in that part of the world. It is round, and of the size of one of our common apples; yellow on the outside, and white within. It resembles the mangoustan; but its pulp is more transparent; its taste is very agreeable, and has some resemblance to that of our gooseberries.

BADRACHILLUM, or the SACRED MOUNTAIN, a town of Hindostan, in Golconda, on the north-east side of the river Godavery, consisting of 100 huts. Here is a pagoda of great celebrity. Distant seventy-two miles N.W. of Rajamundry, 150 east of Hydrabad, and 134 from Vizagapatam.

BADROWLY, a town of Hindostan, in Guzerat, sixteen miles east of Surat.

BADRYCAZRAM, an extensive mountainous district on the northern borders of Hindostan, between the thirty-first and thirty-third degrees of northern latitude; very unproductive and thinly inhabited.

BADSHIFT BAY; a bay on the coast of Patagonia, in the straits of Magellan. Long. 74° 24′ W. lat. 53° 35 S.

BADUEL (Claude), a French protestant divine, born at Nismes. He went to Switzerland in 1557, where he taught philosophy and mathematics, and exercised his ministry till his death in 1561.

BADULATO, a town and territory of Naples, in Calabria Ultra, extremely productive in wine, oil, honey, turpentine, cotton and silk. Fourteen miles S. S. E. of Squillace.

BADULE, a town of Ceylon, fifty-four miles S. E. of Candy.

BADY, a large town of Africa, in the kingdom of Woolli, governed by an independent chief, under the appellation of Faranba.

BAEA, in botany, a genus of plants, of the class diandria, and order monogynia. Its generic character is COR. ringent, the tube very short, upper lip flat, tridentate; lower lip flat, bilobate: caps bilocular, quadrivalvular, contorted: CAL. quinquepartite, equal.

BAECKEA, in botany, a genus of the octandria order, and monogynia class of plants, named after Abraham Baecka, a friend of Linnæus. The calyx is a permanent perianthium, consisting of a single funnel-shaped leaf, cut into five fragments at the brim; the corolla consists of five roundish petals inserted into the calyx; the pericarpium is a globose capsule, made up of four valves, and containing four cells, in which are a few roundish angular seeds. The species are shrubs.

BAEDOO, an extensive kingdom of central Africa, south of Tombuctoo, and east of Bambarra, to which latter country it is tributary. It is traversed by a river called the Ba Nimma, descending from the mountains of Cong. The interior is little known.

BAELAMA, in zoology, the Arabian name, according to Forskal, of a species of clupea.

BAENA, or VAENA, a town of Spain, in the Andalusian province of Cordova, surrounded with walls, and containing four parish churches, five religious houses, and 4800 inhabitants. Here are some excellent salt works. It is eighteen miles E. S. E. of Cordova.

BAEOBOTRYS, in botany, a genus of plants, of the class pentandria, and order monogynia. Its generic character are COR. tubulose, quinquefid: CAL. double, superior; exterior of two leaves; inferior campanulate quinquedentate. Berry unilocular, many-seeded. Willdenow describes two species; one, a native of Arabia, is figured by Mart. Vahl. Symbola Botanica, tab. 6.

BAERSUIS, or VEKENSTIL (Henry), a printer and mathematician of the sixteenth century. He settled in Louvain, where he published Tables of the Longitudes and Latitudes of the Planets, in 1528.

BAERWALDE, or BARWALDE, a town of New Mark of Brandenburg, in the Prussian states, circle of Konigsburgh, population 1500. Here Gustavus Adolphus entered into a secret treaty with France in 1631. It is thirteen miles N. N. W. of Custrin, and forty-two E. N. E. of Berlin.

BÆTERRÆ, an ancient town of the Tertosages in Gallia Narbonensis, on the east bank of the Obris. It is now called Besiers.

BÆTICA, a province of ancient Spain, so called from the river Bætis. It was bounded on the west by Lusitania; on the south by the Mediterranean, and Sinus Gaditanus; on the north by the Cantabric sea, now the Bay of Biscay. On the east and north east its limits cannot be so well ascertained, as they are known to have been in a continual state of fluctuation, each petty monarch having had an opportunity of encroaching upon his neighbour. The province was divided into two by the river Bætis, on the side of which, towards the Anas, were situated the Turdetani, from whence the kingdom was sometimes called Turdetania, though more generally Bæturia. On the other side, along the Mediterranean, were situated the Bastuli, Bastetani, and Contestani. The whole province of Bætica, according to the most probable account, is contained in what is now called Andalusia, part of the kingdom of Grenada.

BÆTIS, a famous river of ancient Spain, afterwards called Tartessus, and now Guadalquiver, or the Great River.

BÆTOLO, a town of ancient Spain, in the Terraconensis; now Badelona, in Catalonia.

BÆTURIA. See BÆTICA.

BÆTUS, in ichthyology, a name given by Aristotle, and others of the ancient Greeks, to the fish called by the Latin writers cottus; particularly to that species called by us the bullhead, or miller's thumb.

BÆTYLIA, anointed stones, worshipped by the Phœnicians, by the Greeks before the time of Cecrops, and by other barbarous nations. They were commonly of a black color, and consecrated to some god, as Saturn, Jupiter, the Sun, &c.—Some are of opinion that the origin of this practice is to be derived from the pillar of

stone which Jacob erected, and near which he worshipped, at Bethel. These bætylia were much the object of the veneration of the ancient heathens. Many of their idols were no other. In reality, no sort of idol was more common in the eastern countries, than that of oblong stones erected, and hence termed by the Greeks, κιονες, pillars. In some parts of Egypt they were planted on both sides of the highways. In the temple of Heliogabalus in Syria, there was one pretended to have fallen from heaven. There was also a famous black stone in Phrygia, said to have fallen from heaven. The Romans sent for it, and the priests belonging to it, with much ceremony, Scipio Nasica being at the head of the embassy. The priests of Cybele carried a bætylion on their breasts representing the mother of the gods.

BÆTYLOS, the same with BÆTYLION; plural, BÆTYLIA. See last article.

BAEZA, or BAECA, a town of Spain, in the province of Jaen, Andalusia. Its streets and squares are handsome, and it was in former times a place of considerable importance, the residence of a Moorish king. It was subsequently a bishop's see, and the seat of a university. At present it is fallen into decay, but has still two chapters, several parish churches and cloisters, a corregidor, a society under the title of economical, several good tanneries, and a population of 15,000. It is seventy miles N. N. E. of Cordova. Long. 3° 35′ W., lat. 38° 4′ N.

BAEZA, a city of the province and government of Quixos and Macas, in the kingdom of Quito. It was formerly rich and populous, but has been wasted by the Indians. Lat. 26° S.

BAFFA, or BOFO, a sea-port on the Grain Coast of Africa, which carries on a considerable trade in pepper. Long. 8° 52′ W., lat. 5° 10′ N.

BAFFA, a sea-port town on the west coast of the island of Cyprus, the ancient Paphos, situated on a rocky eminence close to the sea. Its harbour is choked up with sand, and is generally avoided by mariners, because of its dangerous approach, and from its having no shelter from the violence of the winds. The Turks have built a castle on the point of a rock to the south-west, which is defended by artillery; and it is the residence of a Turkish aga. Of several Christian churches only one remains, in which the Greeks officiate; who still have a bishop here, suffragan of the archbishop of Nicosia. Pieces of fine rock crystal are sold here under the name of Baffa diamonds: amianthus also, of superior quality, is found in the neighbourhood. It is called cotton stone by the natives. Various ruins and some antiquities are scattered over the vicinity of Baffa, among which are many highly polished blackish marble columns, traditionally supposed by the inhabitants to have been the materials of the palace of Aphroditis. Further east, others of a large size denote the site of a temple. There is also cut out of the rock a subterraneous church, dedicated to the seven sleepers, and a large excavation, conjectured to have been a cistern. Long. 32° 18′ E., lat. 34° 48′ N.

BAFFA, CAPE, a cape on the south-west coast of the island of Cyprus. Long. 32° 18′ E., lat. 34° 57′ N.

BAFFETAS, or BAFTAS, a cloth made of coarse white cotton thread, which comes from the East Indies. That of Surat is the best.

BAFFIN'S BAY; a large gulf or bay of North America, lies between seventy and eighty degrees of north latitude. It opens into the Atlantic ocean through Baffin's and Davis's straits, between Cape Chidley, on the Labrador coast, and Cape Farewell on that of West Greenland; both of which are in about the sixtieth degree of north latitude; and abounds with whales and walrusses. On the south-west side of Davis's straits it has a communication with Hudson's bay, through a cluster of islands, in lat. 74° 20′; it communicates with Sir James Lancaster's sound, through which Captain Parry passed triumphantly, and discovered Barrow's straits, Prince Regent's Inlet, &c.

BAF'FLE, *v. a.* & *n. s.* } In Fr. *befler*, from
BAF'FLER, *n. s.* } *buffle*, an ox, and
BAF'FLED, *adv.* } signifies to lead by the nose as an ox; that is, to amuse or disappoint; to perplex by a feint. Its general acceptation is eluding the schemes of others by dextrous management. It is sometimes explained by the words to defeat, to disconcert, and confound. Dr. Johnson employs these terms in his definition of it. But Crabbe has well distinguished them, and given them different shades of meaning in their application. Baffle expresses less than defeat; defeat less than confound; and disconcert less than all. Obstinacy, perseverance, skill, or art, baffles; force or violence defeats; awkward circumstances disconcert; the visitation of God confounds.

Where thou wilt, lad, I'll make one; an I do not, call me villain, and *baffle* me. *Shakspeare.*

Go, *baffled* coward, lest I run upon thee. *Milton.*

They made a shift to think themselves guiltless, in spite of all their sins; to break the precept, and at the same time to *baffle* the curse. *South.*

He hath deserved to have the grace withdrawn, which he hath so long *baffled* and defied. *Atterbury.*

Experience, that great *baffler* of speculation, assures us the thing is too possible, and brings, in all ages, matter of fact to confute our suppositions.
Government of the Tongue.

Etruria lost,
He brings to Turnus' aid his *baffled* host. *Dryden.*

When the mind has brought itself to close thinking, it may go on roundly. Every abstruse problem, every intricate question, will not *baffle*, discourage, or break it. *Locke.*

Now shepherds! to your helpless charge be kind,
Baffle the raging year, and fill their pens
With food at will. *Thomson.*

BAG', *v. a.* & *n.* A sack, pouch, or purse. Either artificially constructed, or the work of nature.

Cousin, away for England; haste before,
And, ere our coming, see thou shake the *bags*
Of hoarding abbots; their imprison'd angels
Set thou at liberty. *Shakspeare.*

Sing on, sing on, for I can ne'er be cloy'd;
So may thy cows their burden'd *bags* distend.
Dryden.

Two kids that in the valley stray'd
I found by chance, and to my fold convey'd:
They drain two *bagging* udders every day. *Id.*

Like a bee, *bagg'd* with his honey'd venom,
He brings it to your hive. *Id. Don Sebastian.*

Once, we confess, beneath the patriot's cloak,
From the crack'd *bag* the dropping guinea spoke.
Pope.

We saw a young fellow riding towards us full gallop, with a bob wig and black silken *bag* tied to it.
Addison.

Bag, in commerce, a term signifying a certain quantity of some particular commodity; a bag of almonds, for instance, is about 300 weight; of anise seeds, from 300 to 400; of pepper, from 1¼ to 300; of cotton yarn, from 2½ to 4¼, &c. Bags are used in most countries to put several sorts of coin in, either of gold, silver, brass, or copper. Bankers, and others, who deal much in current cash, label their bags of money, by tying a ticket or note at the mouth of the bag, signifying the coin contained, the sum total, its weight, and of whom it was received. Tare is allowed for the bag.

Bag, in farriery, is when, in order to retrieve a horse's lost appetite, they put in an ounce of assafœtida, and as much powder of savin, into a bag, to be tied to the bit, keeping him bridled for two hours several times a-day; as soon as the bag is taken off, he will fall to eating. The same bag will serve a long time.

Bag, in medicine and pharmacy, a kind of fomentation, prepared of proper ingredients, enclosed in a bag, to be applied externally to a part diseased, for present relief. Dispensatory writers describe cordial bags, used in deliquiums; bags for the side, for the stomach, in weaknesses of the stomach; anodyne bags to ease pain in any part. Wines and ale are frequently medicated by putting into them bags full of proper ingredients. Sweet bags, are composed of perfumes, scented powders, and the like, enclosed in bags, to give a fragrancy to clothes, &c.

BAGA. See Ruta Baga.

BAGADAT, or Bagalin, a name by which some call the carrier pigeon, the columba tabellaria of Moore. The name is probably a corruption of the word Bagdat, the city from whence they are sometimes brought to Europe; being originally brought thither from Bazora.

BAGALAEN, or Bugelen, a district in the south of Java, nearly about the centre of the island, from east to west. The dialects of Scindo and of this district, are said to be very distinct from the Javanese Proper. From the Bugelen dialect the Sooloo language is supposed to be derived.

BAGAMADER, or Bagamedri, a province of Abyssinia in Africa: so named from the great number of sheep bred in it; meder signifying land or earth, and bag a sheep. Its length is estimated about sixty leagues, and its breadth twenty, but formerly it was much more extensive; several of its provinces having been dismembered from it, and joined to that of Tigre. A great part of it, especially towards the east, is inhabited by wandering Gallas and Caffres.

BA'GATELLE, *n. s. Bagatelle*, Fr. A trifle; a thing of no importance.

Heaps of hair rings and cypher'd seals;
Rich trifles, serious *bagatelles*. *Prior.*

BAGAUDÆ, or Bacaudæ, a faction of peasants, or malcontents, who ravaged Gaul about A. D. 290, and assumed the name Bagaudæ, which, according to some authors, signified, in the Gaelic language, forced rebels; according to others, robbers. After seven months' siege they stormed the city of Autun. Villages and open towns were everywhere abandoned to their ravages; and they shook off the yoke of slavery only to show their incompetency for freedom, by a perpetration of the most cruel barbarities. Two of their most daring leaders, Ælianus and Amandus, had the boldness to assume the title and decorations of the Cæsars; and the cabinets of the curious still contain medals which they coined. Maximian, when associated with Dioclesian in the imperial government, devoted himself to the reduction of the Bagaudæ. It has been said that they were Christians; but even Mr. Gibbon (ii. 123) rejects this fact.

BAGAUZE, the name given, in the Antilles, to the sugar-canes, after they have passed through the mill; they are dried, and used for boiling the sugar.

BAGDAD, or Bagdat, a celebrated city and pachalic of Asia, in Arabian Irak, seated on the eastern banks of the Tigris, which is here upwards of 600 feet wide. It is 300 miles N.N.W. of Bassora, 210 south of Mosul, and 1350 east of Constantinople. This city is of an oblong figure, about 1500 paces in length, by 800 in breadth, environed with a high but ruined wall, and a deep ditch. It has six gates surmounted with cannon, a castle, and an armoury; but the whole of its defences are in a very feeble and contemptible state. Here are some handsome houses; the markets are well supplied, and the bazaars are magnificent, containing from 1200 to 1500 shops, loaded with every description of eastern merchandise. Bagdad, in fact, is the great link of communication between Asia Minor, Syria, and even Europe and the East. The chief imports from India are, gold brocade, cloths, sugar, pepper, tin, sandal-wood, iron, china-ware, spice, cutlery, arms, and broad-cloth; in return for which they send bullion, copper, gall-nuts, tamarisk, leather, and otto of roses. From Aleppo are imported European silk-stuffs, broad-cloth, steel, cochineal, gold thread, and several other European articles, which are brought in Greek vessels to Scanderoon. The imports from Persia are, shawls, carpets, silk, cotton, white cloth, leather, and saffron: and those from Constantinople are, bullion, furs, gold and silver thread, jewels, brocade, velvets, and otto of roses. Its principal manufactures are red and yellow leather (which is much esteemed), silk, cotton, and woollen stuffs; and latterly a foundry of cannon has been erected.

Bagdad exhibits the ruins of a number of antique buildings. On the west side of the river is a suburb connected with the city by a bridge of boats, upon which the Báb jisrì, (Bridge gate) opens. The great extent of this city anciently on the west, as well as on the east side of the river, appears from the ruins all round this suburb. Here are the tombs of many Mahommedan saints; among others, those of the Imàms Abù Hanífak and Hanbel, founders of two of the orthodox sects; and of Másа Kázim, one of the twelve Imàms, the successors of Ali,

so much venerated by the Persians. To the literary traveller it offers many other objects of interest; such as the tombs of Haroun Al Raschid, and his consort Zobeidah, so often mentioned in the Arabian Nights; and the remains of some fine mosques and colleges, monuments of the most brilliant period of Arabian history. But even the wrecks of many palaces and public buildings, celebrated by eastern writers, have not entirely disappeared.

Bagdad was founded by the caliph Abu Jafur Almansor in 766, and completed in four years. In the following century the celebrated Haroun Al Raschid reigned here, and under the auspices of Zobeïda, his queen, and the vizier Jaffer Barmakeed, it rose into great splendor and importance; but was almost totally destroyed by the Turks, 100 years later; and in the thirteenth century was stormed by the Tartar prince Holaku, the grandson of Jenghis Khan, who put the sovereign to death, and abolished the caliphate. Tamerlane seized upon Bagdad in the year 1416, and Kara Yusef in 1436. Shah Ismael, the first of the royal Persian house of Sefi, rendered himself master of it in the following century, since which time, it has been an object of constant contention between the Turks and Persians.

Bagdad sustained a memorable siege by the Turkish emperor Amurath IV. who, with an army of 300,000 men, reduced it to great extremities: it surrendered in 1638, on the promise of indemnity; but the savage victor, having gained possession of the place, put a great proportion of the inhabitants to the sword. During the following century, Nadir Shah endeavoured in vain to wrest it from the Turks, and was obliged to retire with disgrace; and in the course of later years its safety has been frequently menaced by the Wahabees. In 1750 the inhabitants prevailed upon the Porte to appoint the pásha whom they chose to name; and they have ever since maintained this species of virtual independence.

The commerce of Bagdad was once very extensive and flourishing; but, from the improvident oppression of its rulers, it has now greatly declined. It is however, a place of great resort; the residence of a pasha; and a constant resort of pilgrims. Tavernier rated the population in his time at 150,000, but they probably do not amount to 50,000 at present. This population consists of Arabs, Persians, Turks, Jews, Armenians, and other eastern Christians, who are represented as generally courteous to strangers, and of an independent spirit. The truth is, that the páshàs are sensible of the advantage of their distance from Constantinople, and obey or disobey the orders of the sultan, according to their own convenience.

Great extremes of heat and cold are felt here: in summer, especially when the sámm-yelì, or poisonous wind, blows, the inhabitants are obliged to take refuge in the well ventilated cellars with which most of the houses are provided: and in winter the cold is sufficient to produce ice half an inch thick. This is considered as intolerable; and many of the natives are said to perish by it. The natives are likewise subject to a cutaneous disorder, for which no cure has yet been discovered: it appears in the form of a pimple, then degenerates into an ulcer, and at the end of eight or ten months dries up of itself, leaving a prominent mark. The inhabitants of Aleppo, and other towns in Syria, are also subject to this disease.

The pachalic, or vice-royalty, of which Bagdad is the capital, is one of the largest in the Turkish dominions. It contains eighteen sanjàks, or military divisions, and two districts of Kurdistàn. According to the present distribution of the empire, it comprehends all its south-eastern angle; having Diyàr-boer and Mount Sinjah on the north; Persia on the east; the Persian gulf on the south; and the Euphrates on the west. It therefore very nearly corresponds with the Mesopotamia of the ancients. Its area is about 178,100 square miles. The pacha is commander-in-chief of the troops stationed in his pachalic; next to him are the aghàs of the janissaries and sipáhis. Their whole number amounts to 30,000; infantry and cavalry in nearly equal proportions. A corps of 500 men, trained in the European manner, which was raised a few years ago, is still kept up.

This province has some very fertile spots: but is too much exposed to the depredations of banditti to be cultivated in any proportion to its capabilities. It includes many celebrated cities and towns, such as Bagdad, Bassora, Mosul, and Merdin.

The revenue derived from the customs, a capitation-tax, occasional contributions of the towns and cities, and the tribute levied on the Arab tribes, does not exceed 7,500,000 piastres, or £375,000.

BAGDAGSHAN, a very ancient city and district of Bokharia, in the province of Balkh, situated at the foot of the mountains which separate Hindostan from Great Tartary. The city is not large, but exceedingly strong by its situation; and belongs to the khan of Proper Bukharia, who uses it as a kind of state prison. It is well built and very populous. It stands on the north side of the river Amu, about 100 miles from its source; and is a great thoroughfare for the caravans designed for little Bukharia. The inhabitants are enriched by mines of gold, silver, and rubies, which are in the neighbourhood; and those who live at the foot of the mountains gather gold and silver dust, brought down in the spring by torrents occasioned by the melting of the snow on the top. It is 150 miles east of Balkh.

BAGE (Robert), a novel-writer of the last century, was the son of a paper-maker at Derby, and born in 1728. He was brought up to the same occupation as his father, but having a taste for literature, he gained a knowledge of mathematics, and of the French and Italian languages. He wrote Mount Henneth, 2 vols. 1781; Barham Downs; The Fair Syrian; James Wallace; Man as he is; and Hermsprong, or Man as he is not. The last two, which appeared, when the author was nearly seventy years of age, were decidedly superior to the preceding. He died at Tamworth in 1801. Three of the earlier novels of this writer have been republished in

the ninth volume of Ballantyne's Novelist's Library, edited, with biographical prefaces, by Sir Walter Scott.

BAGFORD (John), an antiquary, and great collector of old English books, prints, &c. was born in London. He had been, in his younger days, a shoemaker; afterwards, a bookseller; and lastly, for the many curiosities wherewith he enriched the famous library of Dr. John Moore, bishop of Ely, his lordship got him admitted into the Charter-house. He was several times in Holland, and on the Continent, where he procured many valuable old books, prints, &c. some of which he disposed of to the late earl of Oxford, who purchased his collections, papers, &c. for his library. In 1707 were published, in the Philosophical Transactions, his Proposals for a General History of Printing. He died at Islington, May 15, 1716, aged 65; and was buried in the cemetery of the Charter-house.

BAG'GAGE, *n. s.* From *bag; baggage;* Fr. and from *bagaglia*, Ital. The furniture and utensils of an army; or any goods that are moveable. It is likewise employed to designate a dissolute woman of the baser sort, because such usually follow camps.

No barricado for the belly; it will let in and out the enemy *bag* and *baggage*. *Shakspeare.*

They were probably always in readiness, and carried among the *baggage* of the army. *Addison on Italy.*

Dolabella designed, when his affairs grew desperate in Egypt, to pack up *bag* and *baggage*, and sail for Italy. *Arbuthnot.*

A spark of indignation did rise in her, not to suffer such a *baggage* to win away any thing of hers. *Sidney.*

When this *baggage* meets with a man who has vanity to credit relations, she turns him to account.

Baggage, in antiquity, was distinguished by the Romans into two sorts; a greater and less. The lesser was carried by the soldier on his back, and called sarcina; consisting of the things most necessary to life, and which he could not do without. Hence colligere sarcinas, packing up the baggage, is used for decamping, castra movere. The greater and heavier was carried on horses and in vehicles, and called onera. Hence onera vehiculorum, sarcinæ hominum. The baggage horses were denominated sagmentarii equi. The Roman soldiers in their marches were heavily laden, in so much that they were called, by way of jest, muli mariani, and ærumnæ. They had four sorts of luggage, which they never went without, viz, buccellatum, or corn, utensils, valli, and arms. Cicero observes, that they used to carry with them above half a month's provisions; and we have instances in Livy, where they carried provisions for a whole month. Their utensils comprehended those proper for gathering fuel, dressing their meat, and even for fortification or entrenchment; and what is more, a chain for binding captives. For arms, the foot carried a spear, shield, saw, basket, rutrum, hatchet, lorum, falx, &c. Also stakes or pales, valli, for the sudden fortifying a camp; sometimes seven, or even twelve of these pales were carried by each man, though generally, as Pollybius tells us, only three or four. On the Trajan column we see soldiers represented with this fardle of corn, utensils, pales, &c. gathered into a bundle and laid on their shoulders. Thus inured to labour, they grew strong, and able to undergo any fatigue in battle; the greatest heat of which never tired them, nor put them out of breath. In after times, when discipline grew slack, this luggage was thrown on carriages and porters' shoulders. The Macedonians were not less inured to hardship than the Romans; when Philip first formed an army, he forbad all use of carriages; yet, with all their load, they would march, in a summer's day, twenty miles, in military rank.

Baggage, in modern military affairs, denotes the clothes, tents, utensils of divers sorts, provisions, and other necessaries belonging to the army. Before a march, the waggons with the baggage, are marshalled according to the rank which the several regiments bear in the army; being sometimes ordered to follow the respective columns of the army, sometimes to follow the artillery, and sometimes form a column by themselves. The general's baggage marches first; and each waggon has a flag, showing the regiment to which it belongs.

BAGLAFECHTE, in ornithology, the name of Gmelin's loxia philippina, var, β, in Buffon's history of birds.

BAGLANA, or Bhagelana, a large district in the Mahratta territories, in the province of Aurungabad, situated principally betwixt the 20th and 21st degrees of north latitude. It is exceedingly mountainous, but contains many fertile plains; and its natural strength is augmented by a number of strong fortresses, erected on the summits of the mountains. The rivers are small, and the only towns of any note are Chandere, Tarabad, and Ingauw.

BAGLIVI (George, M. D.) an illustrious physician of Italy, born in Apulia, about 1668. He graduated at Padua, and afterwards went to Rome, where he was chosen professor of anatomy. His works were printed first in 1710, in 4to. The Praxis Medica, and De Fibra Matricis are his principal pieces. He wrote a Dissertation upon the Anatomy, Bite, and Effects of the Tarantula, and gave a particular account of the earthquake at Rome and the adjacent cities in 1703. His works are all in Latin.

BAGNA di Aqua, a town of Italy, in Tuscany. It is divided into the upper and lower towns, the former of which is called Petraja, and the latter Perlascic. It has long been celebrated for its warm baths, and is fifteen miles east of Leghorn.

BAGNAGAR, a town of Asia, in the dominions of the Great Mogul, once the capital of Golconda. Its suburbs were three miles long, and chiefly remarkable for a magnificent reservoir of water, 220 miles north-west of Fort St. George, and as many east of Goa.

BAGNAJA, a small town of the ecclesiastical states, one mile south of Viterbo, where is held yearly a great cattle market. The Dominicans have here a large monastery, with an elegant church.

BAGNALS, Punta De, a point on the north coast of the island of Barbadoes, between Indian river and the bay of Carlisle.

BAGNARA, a town of Naples, in Calabria Ultra, with the title of duchy, and 5000 inhabitants. It was destroyed by an earthquake in 1783, but has recovered from the calamity, and carries on a trade in wood, pitch, and excellent Muscadel wine. It is fourteen miles west of Oppido.

BAGNAREA, a town of Italy, in the states of the Church; the see of a bishop, and stands on a little hill. Five miles south of Orvieto, and twelve north of Viterbo. Long 12° 10′ E., lat. 42° 38′ N.

BAGNERES DE CAMPIN, or EN BIGORRE, a town of France, in Gascony; the capital of an arrondissement, in the department of the Upper Pyrenees. It contains about 6000 inhabitants, who are employed in tillage and pasturage. It is famed for its hot springs, of which there are no less than thirty-two; they were known in the time of the Romans. The accommodations for visitors are respectable. It is eleven miles south of Tarbes, and 450 S. S. W. of Paris.

BAG'NIO, *n. s.* *Bagno*, Ital. *balneum*, Lat. bath. A house for bathing, and other less innocent purposes.

I have known two instances of malignant fevers produced by the hot air of a *bagnio*.
Arbuthnot on Air.

When I see a young profligate squandering his fortune in *bagnios*, or at a gaming-table, I cannot help looking on him as hastening his own death, and in a manner digging his own grave. *Connoiseur.*

BAGNIOS. The word is metaphorically applied to houses of bad fame. In Turkey it is become a general name for the prison where the slaves are enclosed, it being usual in those prisons to have baths.

BAGNOLS, a town of France, in Languedoc, the head of a canton in the department of the Gard, arrondissement of Usez. It stands on a rock, has a manufactory of various kinds of silk, and contains 4800 inhabitants. An expensive road has been cut through a hill, four miles in length, leading from this place to the Pont du Gard and Nismes. The sands of the neighbouring river Ceze yield gold occasionally. It is twenty-one miles east of Nismes.

BAGNOLENSES, or BAGNOLIANS, in church history, a sect of heretics, who in reality were Manichees, though they disguised their errors. They rejected the Old Testament and part of the New; held the world to be eternal; affirmed that God did not create the soul, when he infused it into the body; and denied his prescience.

BAGOAS, a Persian name for the king's eunuch, employed in history to denote Bagoas, an Egyptian, who governed for a long time under Artaxerxes Ochus. He poisoned his master, and then put to death Arses, whom he had set up as his successor, but was at length killed by Darius, against whose life he conspired. This eunuch answers to the Bagoas mentioned in Judith.—*Diodor.* l. 17; *Joseph. Antiq.* l. 11. c. 7. 2. A eunuch who was in great favor with Alexander the Great, &c.

BAGOI, among the ancient Persians, were the same with those called by the Latins spadones, viz. a species of eunuchs.

BAGOLINO, a town of Venice, on the river Caferro, which runs into the lake of Idro. It has many iron-works, and contains 3600 inhabitants. Twenty-four miles north of Brescia.

BAGONES, a river of Brasil, in the province of Rio Janeiro. It runs S. S. E., and enters the sea near Cape Frio, in lat. 22° 5′ S.

BAGONGUENOU, two of the Laccadive islands, in the Indian ocean, and in the vicinity of each other. Long. 71° 56′ E., lat. 11° N.

BAGOPHANES, a governor of Babylon, who, when Alexander approached the city, strewed all the streets and burned incense on the altars, &c. 2 *Curt.* 5. 1.

BAGOT (Lewis), an English prelate, son of Sir Walter Bagot, bart. and brother to the first Lord Bagot, was born in 1740. He was educated at Westminster, and chosen thence student of Christ Church, Oxford, took his degrees of A. M. and L.L.D. in 1764 and 1772; was made canon of Christ Church in 1771, installed dean in 1777; promoted to the see of Bristol in 1782; translated to Norwich the year following, and thence to St. Asaph in 1790, where he died in 1802. In this latter diocese he rebuilt the episcopal palace. He wrote, 1. A Defence of Subscription to the Thirty-nine Articles, as it is required in the University of Oxford, 1772, which was an anonymous answer to an anonymous pamphlet, entitled Reflections on the Impropriety and Inexpediency of Lay Subscription in the University of Oxford. 2. Twelve Discourses on the Prophecies, preached at the Warburtonian lecture in Lincoln's-inn Chapel.

BAG'PIPE, *n. s.* } From bag and pipe. A
BAG'PIPER, *n. s.* } musical instrument, consisting of a leathern bag, which blows up like a foot-ball, by means of a port-vent or little tube fixed to it, and stopped by a valve and three pipes or flutes; the first called the great pipe or drone, and the second the little one, which pass the wind out only at the bottom; the third has a reed, and is played on by compressing the bag under the arm, when full; and opening or stopping the holes, which are eight, with the fingers. The bagpipe takes in the compass of three octaves.—*Chambers.*

Wel coude he stelen corne and tollen thries,
And yet he had a thomb of gold parde,
A white cote and a blew hode wered he
A *baggepipe* wel coude he blow and soune,
And therewithall be brought us out of toune.
Chaucer.

No banners but shirts, with some bad *bagpipes*, instead of drum and fife. *Sidney.*

Yea, or the drone of a Lincolnshire *bagpipe*.
Shakspeare.

Some that will evermore peep thro' their eyes,
And laugh like parrots, at a *bagpiper*. *Id.*

This light inspires and plays upon,
The nose of saint-like *bagpipe* drone,
And speaks through hollow empty soul,
As through a trunk or whispering hole.
Hudibras.

BAGPIPE. The peculiarity of the bagpipe, and from which it takes its name, is, that the air which blows it, is collected into a leathern bag, from whence it is pressed out by the arm into the pipes. These pipes consist of a bass and

tenor, or rather treble; and are different according to the species of the pipe. The bass part is called the drone, and the tenor or treble part the chanter. Bagpipes are chiefly used in Scotland and Ireland. In all the species, the bass never varies from its uniform note, and therefore very deservedly gets the name of drone; and the compass of the chanter is likewise very limited. There is a considerable difference between the Highland and Lowland bagpipe of Scotland; the former being blown with the mouth, and the latter with a small pair of bellows: though this difference is not essential, every species of bagpipe being capable, by a proper construction of the reeds, of producing music either with the mouth or bellows.

The Highland Bagpipe consists of a chanter and two short drones, which sound in unison with the lowest note of the chanter, except one. This is exceedingly loud, and almost deafening, if played in a room; and is therefore mostly used in the fields, for marches, &c. It requires a prodigious blast to sound it; so that those unaccustomed to it cannot imagine how Highland pipers can continue to play for hours together, as they are often known to do. For the same reason, those who use the instrument are obliged either to stand on their feet, or walk when they play. The instrument has but nine notes; its scale, however, has not yet been reduced to a regular standard, by comparing it with that of other instruments. Those who are best acquainted with it, affirm that it plays only the natural notes, without being capable of variation by flats or sharps.

The Irish Bagpipe is the softest, and in some respects the most melodious of any, so that music books have been published with directions how to play on it. The chanter, like that of all the rest, has eight holes like the English flute, and is played on by opening and shutting the holes as occasion requires; the bass consists of two short drones, and a long one. The lowest note of the chanter is D on the German flute, being the open note on the counter string of a violin; the small drone (one of them commonly being stopped up) is tuned in unison with the note above this, and the large one to an octave below; so that great length is required in order to produce such a low note, on which account the drone has sometimes two or three turns. The instrument is tuned by lengthening or shortening the drone till it sounds the note desired.

The Scots Lowland Bagpipe is also a very loud instrument, though less so than the former. It is blown with bellows, and has a bass like the Irish pipe. This species is different from all the rest, as it cannot play the natural notes, but has F and C sharp. The lowest note of a good bagpipe of this kind is in unison with C sharp on the tenor of a violin, tuned concert pitch; and as it has but nine notes, the highest is D in alt. From this peculiar construction, the Highland and Lowland bagpipes play two species of music essentially different from one another, as each of them also is from every other species of music in the world. This kind of bagpipe was formerly very much used in Scotland at weddings and other festivals; being extremely well calculated for playing that peculiar species of Scots music called reels. But it has been often a matter of surprise how this was possible, as the instrument has only a compass of nine or ten notes at the utmost, which cannot be varied as in other instruments. In this respect, however, it has a very great compass, and will play an inconceivable variety of tunes. Its notes are naturally so high, there is scarce any one tune but what is transposed by it, so that what would be a flat note on the key proper for the violin, may be a sharp one on the bagpipe; and though the latter cannot play any flute note, it may in this manner play tunes which on other instruments would be flat.

The small Bagpipe has the chanter not exceeding eight inches in length; for which reason the holes are so near each other, that it is with difficulty they can be closed. It has only eight notes, the lower end of the chanter being commonly stopped. The reason of this is to prevent the slurring of all the notes, which is unavoidable in the other species; this, by having the lower hole closed, and also by the peculiar way in which the notes are expressed, plays all its tunes in the way called by the Italians staccato, and cannot slur at all. It has no species of music peculiar to itself; and can play nothing which cannot be much better done upon other instruments; though it is surprising what volubility some performers on this instrument will display, and how much they will overcome the natural disadvantages of it. Some of this species, instead of having drones like the others, have their bass parts, consisting of a winding cavity in a kind of short case, and are tuned by opening them to a certain degree, by means of sliding covers; from which contrivance they are called shuttle-pipes.

The bagpipe appears to have been an instrument of great antiquity in Ireland, though it is uncertain whence they derived it. Mr. Pennant, by means of an antique found at Richborough, in Kent, has determined that the bagpipe was introduced at a very early period into Britain; whence it is probable that both the Irish and Danes might borrow the instrument from the Caledonians. But that writer observes, 'We must still go further, and deprive even that ancient race of the credit; and derive its origin from the mild climate of Italy, perhaps from Greece. There is now in Rome a most beautiful bas relievo, a Grecian sculpture of the highest antiquity, of a bagpiper playing on his instrument, exactly like a modern Highlander. The Greeks had their Ασκαυλης, or instrument, composed of a pipe and blown-up skin; the Romans in all probability borrowed it from them, and introduced it among their swains, who still use it under the names of piva and cornu-musa. That master of music, Nero, used one; and had not the empire been so suddenly deprived of that great artist, he would (as he graciously declared his intention) have treated the people with a concert, and, among other curious instruments, would have introduced the utricularius, or bagpipe. Nero perished; but the figure of the instrument is preserved on one of his coins, highly improved by that great master: it has the

bag and two of the vulgar pipes; but was blown with a bellows like an organ, and had on one side a row of nine unequal pipes, resembling the syrinx of the god Pan. The bagpipe, in the unimproved state, is also represented in an ancient sculpture; and appears to have had two long pipes or drones, and a single short pipe for the fingers. Tradition says, that the kind played on by the mouth was introduced by the Danes: as theirs was wind music, we will admit that they have made improvements, but more we cannot allow; they were skilled in the use of the trumpet; the Highlanders in the piohb, or bagpipe.'

Aristides Quintilianus informs us, that it prevailed in the Highlands in very early ages; and indeed the genius of the people seems to render the opinion highly probable. The attachment of that people to their music called pibrachs is almost incredible, and on some occasions is said to have produced effects little less marvellous than those ascribed to the ancient music. At the battle of Quebec, 1760, while the British troops were retreating in great disorder, the general complained to a field-officer in Frazer's regiment, of the bad behaviour of his corps. 'Sir (said he, with some warmth), you did very wrong in forbidding the pipers to play this morning: nothing encourages the Highlanders so much in the day of action. Nay, even now, they would be of use.'—'Let them blow like the devil, then (replies the general), if it will bring back the men.' The pipers were now ordered to play a favorite martial air; and the Highlanders, the moment they heard the music, returned and formed with alacrity in the rear. In the late war in India, Sir Eyre Coote, sensible of the attachment of the Highlanders to their favorite instrument, gave them £50 to buy a pair of bagpipes.

There was once a kind of college in the island of Sky, where the Highland bagpipe was taught; the teachers making use of pins stuck into the ground instead of musical notes. This, however, was for some time entirely dissolved, and the use of the Highland pipe became much less general than before, At last a society of gentlemen, thinking it perhaps impolitic to allow the ancient martial music of the country to decline, resolved to revive it by giving an annual prize to the best performers on the instrument. These competitions were held at Falkirk. The Lowland bagpipe was reformed, and the music improved by George Mackie, who is said to have attended the college of Sky seven years. He had before been the best performer on that instrument in that part of the country where he lived; but, while attending the college at Sky, adapted the graces of the Highland music to the Lowland pipe. Upon his return, he was heard with astonishment and admiration; but unluckily, was not able to commit his improvements to writing, and indeed the nature of the instrument scarcely admits of it.

BAGRE, in ichthyology, a small bearded fish, of the anguilliform kind, of which there are several species. It has no scales, but is covered over the whole body with a soft mucous skin of a silvery whiteness, and the beard, the head, and the fins are all of the same color; the eyes are large, the mouth small, and without teeth. It is caught in the American seas, and is eaten; but if any body is wounded by its thorns, it gives great pain, and is difficult to cure. In the Linnæan system it is classed as a species of silurus.

BAGRE De Rio, a name by which some call the fish more frequently known by the name of nhamdia.

BAG-REEF, in maritime affairs, a fourth or lower reef, sometimes used in the royal navy.

BAGSHAW, a romantic little town in the High Peak of Derbyshire.

BAGSHOT, or Badshot, a small town in Surry, two miles and a half south-west from Staines, and twenty-six from London. This place is famous for its excellent mutton, brought hither from the Hampshire downs. It was formerly called Holy Hall, and our kings had anciently a house and park here. The church was rebuilt in 1676, having been destroyed by lightning. Bagshot-heath, which surrounds the town, is mostly uncultivated, but upon its borders are some handsome seats, and one is the residence of his royal highness the duke of Gloucester.

BA'GUETTE, *n. s.* Fr. a term of architecture. A little round moulding, less than an astragal; sometimes carved and enriched.

Baguette Devinatoire, the divining-rod, generally regarded as a piece of philosophical quackery. It is nothing else than a forked piece of hazle, the two branches of which are often from fifteen to eighteen inches in length, and form an angle of thirty or forty degrees. They are held in the hands in a certain manner, so that the trunk or middle is turned towards the heavens. Some persons, it is said, are endowed with such a property, that if they hold this rod as above described, it tends by a violent effort to turn its trunk downwards, when in the proximity of a spring, or of precious metals concealed in the bowels of the earth, or stolen money, &c. Nay, some have even asserted that it has pointed out, in this manner, the traces of criminals, robbers, or assassins. (See Hutton's Translation of Montucla's Ozanam, vol. iv. p. 260). A lady of rank, on reading his account of the divining-rod, wrote several letters to Dr. Hutton on the subject, describing the way in which she discovered that she possessed the faculty of finding water by such an instrument; and relating that she actually found water, by means of the hazle, in the duke of Manchester's park, at Kimbolton, Huntingdonshire, about thirty years ago. The same lady also exhibited successfully her method of discovering water, at Woolwich Common, to Dr Hutton and his friends. See Divining Rod.

BAGYON, or Bogendorf, a market town of Transylvania, in the county of Kolosch, not far from the Marosch, with churches of the Catholic, Reformed, and Unitarian creeds

BAHALATOHS, a small island in the eastern seas, near the east coast of Borneo. Long. 118° 21′ E., lat. 5° 45′ N.

BAHAMA, or Lucayas Islands, the easternmost of the Antilles are situated in the Atlantic Ocean, to the south of Carolina, between 21° and 28° N. lat. and 71° and 81° W.

long. They extend along the coast of Florida down to the isle of Cuba; are said to be 300, or, according to others, 500 in number, some of them only mere rocks; but twelve or fourteen of them are large and fertile, and differing but little from the soil of Carolina. Proceeding from the southern to the northern extremity of the chain, the group may be thus enumerated:—

1. Turk's islands,
2. The Caucus, or Caicos,
3. The Heneagas,
4. Mayaguana,
5. Crooked island Group,
6. Long island,
7. Watlings,
8. The Exumas,
9. San Salvador,
10. Eleuthera, or Habour Island,
11. Providence,
12. Andros,
13. Lucayo, or Abaco,
14. Bahama.

In addition to the islands included in this group, two extensive sand-banks, called the great and little Bahama banks, occupy a wide space of sea, the boundaries of which are indicated by a vast number of keys and islets. The population of the whole cluster is stated at 16,600. These islands were the first fruits of Columbus's discoveries, and the feelings with which they inspired that great commander are expressed in the name of San Salvador, which he gave to the island on which he landed. It was called Guanahani by the natives, and was first seen on the 11th of October, 1492, being the earliest authenticated discovery of the western hemisphere. These islands are said to have been at this time inhabited by a peaceable race of Indians, whom the Spaniards transported to work in the mines of St. Domingo. They were not known to the English till 1667, when captain Seyle, being driven among them in his passage to Carolina, first gave his own name to one of them; but being a second time driven upon it, he gave it the name of Providence. The English government observing the advantageous situation of these islands, as a check on the French and Spaniards, attempted to settle in them in the reign of Charles II.; but they were little more than harbours for the buccaneers, until, in 1718, captain Woodes Rogers was sent out with a fleet to dislodge the pirates and make a settlement. A fort was now erected and an independent company stationed on the island. Ever since these islands have been slowly improving. In 1781 they were surrendered to the Spaniards, but restored to the British by treaty at the end of the war. At this period, also, many of the British loyalists and planters repaired to the Bahamas, chiefly from the southern states of North America; from which period the principal islands have been regularly settled. In 1773 the number of whites was 2052, and the blacks about 2241. Previously to May 1803 lands were granted by the crown, in the whole of the Bahamas, to the amount of 65,381 acres, for the purpose of cultivation. At that time the population amounted to about 4,318, including 11,395 blacks and people of color, and it appears, by a return to the House of Commons in 1805, that the number of slaves imported for two years previously to the year 1803 amounted to 2523, of whom 2230 were exported, leaving only 293 for the use of the colony. The physical characteristics of the whole of this group are very similar: the surface of the whole is flat, the soil fertile, and the climate serene, but they are all thinly inhabited, and by persons who subsist chiefly by supplying necessaries to the crews of vessels driven on the coast. The thermometer generally varies from 80° to 90° during summer, and from 60° to 65° in winter; but the southern isles experience the influence of the trade-winds through the greater part of the year. The soil in a few places is rich: the chief cultivated product is cotton, besides which they yield mahogany and some kinds of dye woods, salt, turtle, and several species of fish. Cattle and sheep also thrive well, and great numbers of birds are met with, generally of the same kinds as those of the West India islands.

New Providence, being the seat of government, absorbs nearly the whole trade of the group, which is chiefly with England, the West Indies, and North America. Nassau is the principal town, and the seat of government for all the islands. This is founded upon that of the mother country, and resembles those of her other colonies in preserving the legislative, executive, and judicial powers distinct: the governor is the representative of the crown; and in him the executive power is vested. He is commander-in-chief of the military, convenes and prorogues the national assembly, and has power to annul their proceedings, subject to a reference to the king in council. By his judicial character he presides in all the courts. The council consists of twelve persons, appointed by the king, who form the upper house of the legislature, and participate with the governor in his judicial authority. The house of assembly consists of twenty-six members, who are elected by the respective districts. See Edwards's History of the West Indies; and M'Kinnen's Account of the Bahama islands.

Bahama, Great, Island of, one of the Bahama's, sixty-three miles long and about nine broad, situated on the south side of the Little Bahama bank, and extening from the Florida stream almost to the island of Abaco. The soil is fertile, the air serene, and the island well watered. It formerly produced guaiacum, sarsaparilla, and red wood; all which the Spaniards are said to have destroyed. This island is fifty-seven miles from the coast of east Florida. Long. 78° 10′ to 80° 24′ W., lat. 26° 40′ to 27° 5′ N.

Bahama Channel, the narrow sea between the coast of America and the Bahama islands, about forty-five leagues in length, and sixteen in breadth. It is sometimes called the Gulf of Florida. Here the current flows with that rapidity which renders the passage extremely dangerous, except under favorable circumstances.

Bahama Bank, Great, a sand-bank, extending nearly from the island of Cuba to the shores of the Bahama group. It commences about 22° 20′, and stretches to 26° 15′ of north latitude. A smaller bank of the same kind and name occupies a considerable space on the north of the island of Bahama.

BAHAR.

BAHAR, from the Sanscrit Vihar, a Buddish monastery, a large and populous province of Hindostan, formerly called Magadha, and once an independent kingdom. It lies between the twenty-second and twenty-seventh degrees of north latitude, is separated from the Nepaul dominions by an extensive range of hills, rising upon the northern frontier. On the east it has the province of Bengal, on the south the ancient Hindoo province of Gundwana, and on the west a part of the latter, Allahabad and Oude. It was anciently separated from the Benares territories by the river Caramnassa. This province at present is one of the most fertile and highly cultivated territories of Hindostan. Its included area of arable ground is computed at 26,000 square miles, and separated north and south into two equal divisions by the river Ganges, wich flows from west to east in a course of 200 miles.

The northern division stretches a distance of seventy miles from the forests of Nepaul and Morung to the borders of the above river. It is separated on the east from Purneah in Bengal by the Cósa or Cósi, and on the west from Goracpoor in Oude, by the Gunduck, and a crooked line between that river and the Dewah, or Goggrah. The whole included area is one unbroken plain, and was subdivided by the emperor Acber into four districts, namely, Hajypoor, Tirhoot, Sarun, and Chumparun, or Bettiah including four pergunnahs from Monghyr.

The central division extends from the Ganges south, as far as the Vindhya-chil range of hills, a distance of sixty miles. It is separated from Bengal on the east by a branch of the above southern hills, extending to the Tilliaghury pass, on the confines of Rajemal; from Chunar, in Allahabad on the west, by the river Charamnassa. The district Bahar, which lies in the centre of this division, occupies one half of the inclusive level area; the plains of Monghyr one sixth more, and the rest is mountainous. The district of Rotas lies to the south-west, chiefly between the rivers Soane and Caramnassa, and that of Shahabad stretches along the southern side of the Ganges. This central division is usually considered the most important and fertile of the whole province, abounding in opium, and yielding nearly two thirds of the whole produce.

Independent of the above divisions there is a straggling hilly country of 8000 square miles, which is almost barren, and still further to the south, a third elevated region of barren rugged land, to the extent of 18,000 square miles. This lofty territory, including the modern subdivisions of Chuta Nagpoor, Ramghur, and Palamow, is bounded on the west by the Soubah of Allahabad, on the south by Orissa, and on the east by Bengal. Amongst geographers it is termed the Three Bellads or Cantons, and is sometimes described under the appellation of Kokerah, but is more commonly called Nagpoor, from the supposed wealth of its diamond mines.

The extent of this province may easily be perceived from the following table in square miles:—

Assessed lands of eight districts . .	26,287
Hilly territories in Rhotas, Monghyr, &c.	7,133
Content of lands belonging to Palamour, Ramgheir and Nagpoor. .	18,553
Total content of the province. .	51,973

The following extract from the celebrated institutes of Acber, compiled by Abul Fazel, A.D. 1582, may not be unacceptable to the geographical reader.

'The length of Bahar from Gurher to Rotas is 120 coss, and the breadth from Terhoot to the northern mountains includes 110 coss. It is bounded on the east by Bengal, has Allahabad, and Oude to the west; and on the north and south are large mountains. The principal rivers of this Soubah are the Ganges and the Soane. The river Gunduck comes from the north, and empties itself into the Ganges near Hadjypoor. The summer months are here very hot, but the winter is temperate. The rains continue for six months. In the district of Monghyr is raised a stone wall extending from the Ganges to the mountains, and this wall is considered to be the boundary between Bengal and Bahar. The Soubah contains seven districts, viz. Bahar, Monghyr, Chumparum, Hajypoor, Sarum, Tirhoot, and Rotas. These are subdivided into 199 pergunnahs. The gross amount of the revenue is 55,47,985 sicca rupees. It furnishes 11,415 cavalry, 449,350 infantry, and 100 boats.'

The natural features of Bahar are by no means uninteresting. It possesses all the advantages of a rich soil, a temperate climate, and a centrical geographical situation, shaded by mountains and watered by rivers and small streams. Of these the Ganges, the Soane, the Gunduck, the Dummoodah, Caramnassa, and the Dewah are the most remarkable.

In Bahar and the contiguous districts a parching wind from the westward prevails during a portion of the hot season, and blows with great strength during the day, but at night it is succeeded by a cool breeze in the opposite direction. Both occasionally cease for days, and even weeks together, giving way to easterly gales; and during the cold season a blighting frost frequently occurs in both the provinces of Bahar and Benares.

Agriculture, manufactures, and commerce have always flourished in this province, owing perhaps in a great measure to its natural advantages. The chief productions are opium, saltpetre, grain, sugar, betel-leaf, indigo, oils, essences, &c. together with fine timber for boat-building. Cotton cloths for exportation, are manufactured all over the districts, and the hills are supposed to contain coal, sulphur, iron and other metals. The numerous productions of Bahar, together with its

internal, means of communication serving as a thoroughfare for the commerce of Bengal and foreign maritime countries with the province of Hindostan, raised this territory into a state of prosperity, soon after the Patan conquest, and this continued under the Mogul dynasty. Opium may be considered as the staple commodity of the province, although saltpetre is a great article of exportation. The latter is produced in considerable quantities, in the districts of Hajypoor and Sarun, where it is manufactured for exportation. The production of this article is always greatest during the prevalence of the hot winds, which are perhaps essential to its formation. These winds did not formerly extend their influence beyond the eastern confines of Bahar; but by the change of seasons which have been remarked within the last thirty years, they have reached to Bengal Proper, where it is now said saltpetre might be manufactured with nearly the same success as in Bahar. The opium that is produced in this and the neighbouring provinces is monopolized by government, and sold in Calcutta by public sale. The common produce is eight pound of opium for every beegah, which measures about one-third of an acre, besides which the cultivator reaps about fourteen pounds of seed. The preparation of the raw opium is under the immediate superintendance of the company's agent, and is as follows: The watery particles are first evaporated by the sun, and replaced by oil of poppy-seed to prevent the drying of the resin; after which the opium is formed into cakes, covered with the petals of the poppy, and when sufficiently dried is packed up in chests with the fragments of the capsules, from which the poppy-seeds have been thrashed out. The opium is frequently adulterated by intermixing an extract obtained from the stalk and leaves of the poppy, and sometimes the gum of the mimosa; but the adulteration is difficult of discovery.

Bahar was, in common with the greater part of Hindostan, anciently supplied with salt from the lake of Sambher, in the province of Ajmeer; but its supplies of that article are now brought from Bengal and Coromandel, and imported under the protection of government.

Although an intimate connexion has always existed between this province and Bengal, and their histories have been blended, there are, in the nature of landed property, several important distinctions; of which the following are worthy of notice. In Bengal the zemindaries are very extensive, but in Bahar they are comparatively small; hence the Bengalese zemindars assume a degree of power and influence which those of Bahar are not able to maintain. Those of the latter also from their comparative distance having been placed under a provincial administration, have been precluded from that information which the zemindars of Bengal have derived from their access to the offices of government. Though the lands of Bahar have been let to farm, from time immemorial, yet no general settlement had been concluded between government and the proprietors of the soil from the acquisition of the Dewanny until the final and perpetual assessment in 1792; from which circumstance the cultivator was placed under great disadvantages. There are, at present, few instances of jaghires in Bengal; but in Bahar they are common. The custom of dividing the produce of the land in certain proportions between the cultivator and the government was almost universal in Bahar, but in Bengal it was very partial and limited; so that compared with those of the latter province, the land-proprietors of Bahar, generally speaking, were in a degraded condition. There are now in this province three principal zemindars, viz. the rajahs of Tirhoot, Shahabad, and Sunnote Tekaroy; and it has been observed, that the permanent fixing of the revenue system, which was supposed to be fraught with so much mischief, has not been found so injurious in practice as it appeared in theory: the actual cultivators of the earth being now in a much better condition than they were before the adoption of that measure.

It appears from the geographical chapters of the Puranas, the only documents of their ancient geography which the Hindoos possess, that Bahar was originally the seat of two independent sovereignties, viz. that of Magadha or south Bahar, and that of Mithila (Tirhoot) or north Bahar. Different dialects were anciently used, and even now prevail, in those countries; namely, that of Mithila, or Tirhoot, which both in the terms and form of its character has considerable affinity to the Bengalé; and that of Magadha, in which the resemblance to that language is still more characteristic and striking.

Of the general population of the province, at least one-fourth are Mahommedans; Bahar having been conquered by that people at an early period, and afterwards retained in subjection; so that the Brahmins have acquired an unusual degree of influence. Gaya, the birth-place of the great prophet and legislator Buddha, is a place of pilgrimage, and the central resort of sectaries of that persuasion; but among the resident inhabitants few Buddhists are to be found, owing to the intolerance and cruelty of the Brahmins, together with the Mahommedans' mode of propagating and confirming their faith.

The chief towns are Patna, Monghyr, Buxa, Rotas, Gayah, Dinapoor, and Boglipoor. The revenue is considerable, amounting in 1815 to 6,701,538 rupees, or nearly £837,944 sterling. The inhabitants visibly improve, and appear to be of a different race from the Bengalese, whom they excel both in strength and stature.

The province of Bahar is at present divided into the following districts; which, with their natural features and local peculiarities, we shall subjoin for the satisfaction of the reader.

1. Boglipoor, south-east of Bahar, and comprehending a part of the Mogul province of Bengal, is bounded on the north by Tirhoot and Púrinijah, on the east by the latter and Murshid-ábád; on the south by Birb'hum and Rámgarih, and on the west by that district and Bahar. It extends 133 miles one way, and eighty the other, forming a total area of about 8225 square miles, and, according to Ayeen Akberry, ii. 25. 197 was known anciently by the name of the sercar of Mongér. The hills are imperfectly cultivated. The winds shift twice a year, blowing almost

invariably from east to west, between the months of June and February; after which they change from west to east. The heats are frequently oppressive, and the cold season comparatively mild. The soil is in many places rich, and fit for agriculture; but in others, rocky and barren. Hot springs are frequently found in this district; in some of which, particularly at B'hinebaud, the thermometer rises to 144° Fahrenheit. The general character of the population is respectable, but the mountaineers are wild and uncivilised: some of them have been lately brought, under the guidance of the Brahmins, who teach them, to worship Durgà before a bíl-tree.

The most remarkable places in the district are as follow: B'hágal-pùr, the capital, situated in lat. 25° 13′ N., long. 86° 58′ E.; 110 miles north-west of Murshid-ábàd. It is a mean-looking town, in the midst of a beautiful country; and contains a population of more than 30,000 inhabitants, chiefly Mahommedans. Champánager, in lat. 25° 14′ N., long. 65° 55′ E., three miles west of B'hágal-pùr, contains, together with Lacshmí-gani, a population of 9000. A Mahommedan saint, nine cubits high, is said to have been buried here, whose tomb is still a place of pilgrimage. G'hidd'hór, or Ghiddhore, lat. 24° 52′ N., long. 86° 10′ S. S. W. of Mongér, is remarkable for the ruins of a castle, said to have been built by the Affghan Shir Sháh, A. D. 1544; the massive walls of which are still remaining.

Mong'er, Monghyr, (Mudga or Mucti-giri), in lat. 25° 23′ N. long. 86° 26′ W., on the south bank of the Ganges. Its fort, surrounded by a deep ditch, has been a place of note from remote antiquity. The town is formed by the assemblage of sixteen distinct hamlets, provided with only two regular streets, which lie near the eastern and southern gates of the fort. The population is about 30,000. Its most remarkable curiosity, the shrine of Pér Sháh Koseìn Lohaunì, is most venerated, both by Mussulmans and Hindùs. About five miles distant from the above town is the celebrated hot spring called Sítà-cúnd, or the pool of Sità; in oriental mythology, the wife of Ráma the Indian Bacchus. The waters are received into a brick cistern, about eighteen feet square, from which air-bubbles are constantly emitted, although the nature of the gas has not been ascertained. The heat of this spring is different at different times, varying from 92° to 132° of Fahrenheit's thermometer.

Múti j'harnà, or Mootyjerna (the pearl droping stream) lies about eight miles inland from the Ganges; is a remarkable cascade, formed by two fine waterfalls, together measuring 105 feet perpendicular. The waters sweeping over the summit of the rocks, and falling from that lofty altitude, are received into a basin below, which has been conjectured, not upon slight grounds, to be the original crater of an extinct volcano. A view of this magnificent cascade is given in Hodges's Travels in India. Cohl-gáng, (spelt gánù, and pronounced gánùg), a small town, in lat. 25° 14′ N., long. 87° 15′ E., on a peaked hill, ten common cós south-east of Boglipoor. Teliy'agar'hi, or Telliaghurry, is a small town twenty-three miles north-west of Rájà-mahal; lat. 25° 15′ N., long. 87° 37′ E. It is remarkable for an old castle, built by the Sultan Shujáâ, in the seventeenth century. The Vind'hya hills here, come down close to the river, and form the line of boundary between the provinces of Bahar and Bengal, in the Mogul division.

2. BAHAR is a large district lying in the centre, the boundaries of which are ill defined, but generally traced to the Ganges, on the north, to Ramgur and Monghyr on the south, to the latter, with the river Soane on the east, and the district of Rotas on the west; including a territory of 6680 square miles. The level land is highly cultivated, but interspersed with naked and barren hills, which are entirely isolated. Some of these rise in clusters, exhibiting a rugged irregular appearance, of which the most remarkable are, the Beráber pahàr, west of the Phalgù; the Rajà-grìha, or Raj-mahal, hills on its eastern side; and a long narrow range contiguous to Shaikh púrah. The southern hills form a part of the Vind'hyan chain, continued with little or no interruption for a great extent, and, in the opinion of some, even to Cape Comorin. These hills no where approach the river, and the country, though generally lofty, exhibits the immense stretch of one continued plain. The winds commonly blow east and west, shifting twice in the year. The soil is highly fertile, and the climate warm; producing not only the comforts, but even luxuries of life. The rivers and streams which water the country are numerous. The Ganges rolls along its magnificent stream to the width of an English mile. The Sonar, almost equal in the width of its channel, is navigable in the rainy season, and is celebrated for its handsome pebbles and fine fish. The Phalgú, held in religious veneration by the Hindùs, is tremendously deep and rapid, and is formed by the union of two immense torrents above the city Gayà, where it spreads to the breadth of 500 yards. The Punpun, Muraha, Dard'ha, Sacri, and Panchane, are all rivers of considerable importance. The population of this district is overflowing. In 1811 it amounted to 2,755,150 souls, and the increase has been almost incredible. The revenue in 1814 was equal to 1,748,006 rupees, or £218,500 sterling. In point of religion, Mahommedanism is widely extended, although idolatry is the most prevalent. There are six great Hindoo shrines, visited by pilgrims, and two belonging to the Jaín in the division of Nawada.

The principal towns of this district are, Patnà, (in Sanscrit, Padmarati, the lotus-bearing) the capital of the province of Bahar, in lat. 25° 37′ N. long. 85° 15′ E., on the south side of the Ganges, which is here five miles wide in the rainy season. Including the suburbs, it covers an area of twenty square miles, and contains 312,000 population. The public buildings are paltry; the fortifications are in ruins; and even the handsomest mosque is now let as a warehouse. Patna is a place of considerable trade. It has a court of appeal and circuit; a judge and magistrate; collector, commercial-resident, and opium agent: is garrisoned by a provincial battalion, but has few European houses or inhabitants. Patna lies 400 miles from Calcutta, by Murshed-abad.

Danâ-pùr, in lat. 25° 37′ N. long. 85° 5′ E., on

miles west of Patnà, is one of the principal stations of the European troops, and, accordingly, has magnificent barracks, good roads, elegant villas, and is, in short, compared with Patnà, a perfect paradise. Its population is between 20,000 and 30,000.

Gayà, in lat. 24° 49′ N., long. 85° E., is the capital of the district of Bahar, and consists of 1. Gayà Proper, the residence of the Brahmins; and 2. Sabibganj, the residence of the remaining inhabitants, both containing a population of nearly 40,000. This place is celebrated by the Budd'hists as the birth-place of their great legislator, and by the Hindoos as the scene of one of Vishnu's victories over an unmanageable asur or giant. Pilgrims without number crowd from all parts, and their amount is rapidly increasing; since from 31,000 who visited it in 1811, 200,000 at present are said to arrive annually. These pious visitants are taxed by the British government according to the number of holy places they visit. The utmost sum is 14½ rupees, or £1 12*s.* sterling. We have only to add, that the crimes arising from so great an influx of strangers, too evidently shows the deplorable tendency of the Hindoo superstition. The ruins of Budd'ha-gayà, and the number of images scattered round them for fifteen or twenty miles, are astonishing, and render it probable that this was once the centre of Budd'hism, and the residence of some powerful monarch professing that faith.

3. The third district of the province, viz. Tirhoot, or Tirhút, is on the north-west of the province, bounded on the south by the Ganges, on the west by Saren, or Sarun district, on the north by the Saptari woods of Népal, and on the east by Púrnéyah in Bengal. The district is high, healthy, and well-watered, producing, besides the commodities above-mentioned, turmeric, ginger, and several other valuable articles. Its chief rivers are the Gaud'achi, B'hagmati, and Gagari. The whole area in 1784, before the alteration, was upwards of 5000 square miles; the revenue, as late as 1814, amounted to 1,274,717 rupees, or £159,339 sterling; and the population in 1801 was 2,000,000. It was anciently a part of the province, or rather kingdom, of Mit'hilà, which comprehended the greater part of the three districts, Tirhút, Púriníga, Sáren, together with part of the Nepalese territory; and was bounded by the Gandac, Cósa, and Ganges, together with the mountains of Nepal on the north. It was subdued by the Moguls in the fourteenth century, and became part of the British empire in 1765. This district has been recently selected by government for improving the breed of horses, the soil and climate appearing favorable to that purpose; accordingly many of the first quality are reared in the Zilât, or division of Hajì-púr.

The most remarkable mountain feature is the towering peak of D'hólà-giri in the Himaláya chain, near which the Gaud'achi, or Sálagrámi river, suposed to be the Condochates of Arrian, takes its rise in lat. 29° 30′ N., and long. 83° 45′ E., or nearly. The summit of this mountain was calculated by Mr. Colebroke to reach nearly 27,000 feet above the level of the sea. *As. Res.* II 276. In its bed are found schistose stones, or salgráms, containing remains of the cornu ammonis, which are thence dispersed, are objects of adoration all over India. From which circumstance the mountain is called Sálgrámi in Népál. The spiral lines are supposed to be traces of Vishnu, and some of these stones sell for 2000 rupees, or £225. sterling.

Within the limits of Tirhút, or Tirhoot, is the town Hajypoor, or Hájì-púr, with a district of the same name, including an area of 2782 square miles, whence the company obtain most of their saltpetre. The town lies nearly opposite Patnà, at the confluence of the Ganges and Gaud'achi rivers, in lat. 25° 41′ N., and long. 85° 21′ E. It is celebrated for its horse-fair, held every November, to which, in 1807, no fewer than 6000 horses were brought, two of which sold for 4000 rupees, or £450 each. Durb'haugà, in lat. 26° 9′ N., long. 86° 20′ E., was a considerable place in the time of Acbar; and near Sing'hiá, east of the Gaud'achi, lat. 25° 52′ N., long. 85° 15′, are some very curious ruins.

4. The fourth district is Saren (the Asylum), comprehending Bettiá or Champáran, formerly a separate district, and is bounded on the north by Macwan-púr and Gónac'h-púr, on the south by the Ganges, on the west by the Déwa or G'hara river, and on the east by Tirhoot, including, in 1784, an area of 5106 square miles. The whole of Saren suffered extremely from the famine in 1770, by which nearly half the inhabitants perished; but is in general a well cultivated and highly fertile country, and greatly improved since the decennial settlement by Lord Cornwallis. There are only two Mahommedan zemindars in the whole district, and the revenue, in 1814, was 1,233,385 rupees, or £138,756. The population is considerable, amounting, in 1801, to 1,200,000, of whom one tenth were Mahommedans.

Teryáni, or Turyáuì (the country of boats) lies at the foot of the northern hills and the lower lands, where the rivers become navigable. The base of the mountains is covered with wood, and the intervening lands between it and the cultivated districts are covered with grass, intersected by streams and rivers, which in the rainy season are navigable. The confined air, stagnant water, and putrified vegetable matter, in this district render the climate unwholesome in the wet months, especially in the low-lands. The forests are inhabited by elephants, bears, tigers, rhinoceroses, wild boars, jackals, foxes, hares, and hog-deer. The palás (erythrina monosperma) and simul (bombax heptaphyllum) are found on the Nepalese confines. Of this district Chaprah is the capital, lying in lat. 25° 46′ N., long. 84° 46′ E., and extending nearly a mile along the northern bank of the Ganges. The population of this town, in 1817, amounted to 43,700, and is now greatly increased. The Patnà bearers of Calcutta, or the original C'harwa tribe, are settled near the borders of this town, although they emigrated originally from Chóta Nag-púr, lying in the southern part of the province.

5. Shah-abad (the royal residence), is an extremely fertile and populous district, bounded on the north by the Ganges, on the east and south by the Són, and on the west by Chunàr,

in the province of Allah-ábàd; and including, in 1784, an area of 1869 square miles, since which it has been materially augmented. The population is about 2,000,000, and the revenue, in 1814, amounted to 1,177,462 rupees, or £132,465 sterling.

Arrah, the capital of this district, lat. 25° 35′ S., and long. 84° 40′, is extensive and populous. Bagsar, or Bacsar, south of the Ganges, in lat. 25° 35′ N., long. 83° 57′ E., is the place of the celebrated engagement in 1764, when sir Hector Munro, with 6215 Sipákís and 856 Europeans, defeated the combined armies of Shujáû'd daulah and Kásim Alí Khán, amounting to 40,000 men. Here also is a police station, at which all travellers are obliged to exhibit their passports. Sasram, Sesráùng, Sahasram, or Sahasráùng, lying in lat. 24° 58′ N., long. 83° 58′ E., is celebrated for the splendid mausoleum of Shir Khán the Afghàn, built in the midst of a great reservoir or tank, upwards of a mile in circumference. Rohtas is the chief town of the westerly parganah of this district, bounded by the Caramnásà, which joins the Ganges at Bacsar, and contained, in 1784, as many as 3680 square miles. The fortress Rohtás gar'h, on the level summit of a mountain, in lat. 24° 38′ N. and long. 83° 50′ E., was thought impregnable till taken from Rájàh Chintámen in 1542, by Shír Sháh, the celebrated Afghàn. After this it was again surprised, and in 1764, when Kásim Ali evacuated the province, came into possession of the English.

6. Ram-g'har (the house of Rama), the sixth division of the province, is a hilly and mountainous district in the south, bounded on the north by Bahár proper, on the east by Bardáhwán and B'hál-pur, on the west by Bilaunja, Seraúja and Jeshpúr, and by that district, Gang- and Sing'h-b'húm on the south. A great part of this district belonged to the ancient province of Góndwána; but now, in addition to its own peculiar territory, it comprehends Palamò, Pachét, and Chúta Nág-púr. The population has been estimated at half a million, who, though improving, are at present uncivilised. The woods, wild beasts, and savage inhabitants, render this district a perilous residence; whilst superstition, rapine, and murder, are to be seen in all directions. The extent of the Rám-g'har territories in 1784 was 21,732 square miles, of which two-thirds was waste land. Iron is found in many of the hills. The Máhwap tree, or Bassia longifolia, grows abundantly among the rocks, and furnishes a farinaceous pulp which is a substitute for bread, and a nutricious infusion which is used as tea. The chief rivers are Barácar and Damódar; and the largest towns are Macaud-gauj, Chitra, and Rámgar'h. Rámgar'h, on the Damódar, is now a second-rate town, in lat. 23° 39′ N., long. 95° 43′ E. Palamò, or Palamau, the residence of a powerful rajah, is a hilly and woody territory on the Mahratta frontier. Berwa, in lat. 53° 20′ N., long. 84° 46′ E., lies contiguous to Nazárì Bágh, the head quarters of the corps stationed in Ramgar'h. Pachét, a zemíndárì of uncivilised population, contains 2779 square miles. The town is in lat. 23° 36′ N., and long. 86° 50′ E. Ch'hóta Nág-púr is a high, woody, and unhealthy zemíndárì, at the southern extremity of this province, bordered on three sides by Góndwána, and never completely subdued by the Mahommedans. The Chatauri, Cieri, and D'hangar tribes, have never embraced the religion of the Brahmins; but have a religion and language of their own. The productions are similar to those found in the other parts of the district. Iron is commonly met with, but is not manufactured, because that metal can be procured at a smaller expense from the European markets.

For a further illustration of the general features and economy of this province we refer the reader to Hamilton's Hindostan; Asiatic Researches; Bernouilli's Hindostan, i. and ii.; Rennell's Memoir; Ayeen Akberry, &c.

Bahar, a town in the province of Bahar, district of Bahar, 35 miles S. E. from Patna. Lat. 25° 13′ N., long. 85° 37′ E.

Bahar, or Barre, in commerce, weights used in several places in the East Indies. They have been distinguished as the great bahar, with which they weigh pepper, cloves, nutmegs, ginger, &c. and the little bahar, with which they weigh quicksilver, vermillion, ivory, silk, &c. But this weight varies much in different parts of the East. The bahar of Acheen, in Sumatra, consists of 100 cattees, and is equal to 490lbs. avoirdupois. The bahar of Betlefackee, in Arabia, consisting of forty farcels, is = 815¼lbs. avoirdupois. The bahar of Bencoolen = 560 lbs. avoirdupois. The bahar of Junkseylon of eight capins = 485lbs. 5oz. 5½dr. The bahar of Molacca, of three peculs = 405lbs. avoirdupois. The bahar of Mocha, of fifteen franks = 445lbs. avoirdupois.

BAHAREN, or Bahhrein, a cluster of islands in the Persian Gulf, chiefly remarkable for the pearl fishery of the neighbourhood. They have often changed masters. With Ormus they came under the dominion of the Portuguese, were again restored to Persia by Thomas Khouli Khan; and after his death, the confusion into which his empire was thrown, gave an opportunity to an enterprising and ambitious Arab of taking possession of them. But he was soon compelled to relinquish them once more to the Persians; who have lately been, in their turn, driven from them by the rising sect of the Wahabees. Baharen, or Awal the principal island, was famous for its pearl fishery even when pearls were found at Ormus, Kareke, Kashy, and other places in the Persian Gulf: but became of much greater consequence when the other banks were exhausted. It lies about fifteen miles from the coast, and ninety W. N. W. of Bushire; and is covered with villages and date gardens. The capital, Medina, containing 800 or 900 houses, and a strong fort, which was some time ago garrisoned by 300 Persians. The town is destitute of water; but here is a harbour which will admit vessels of 200 tons burden, and a strong castle.

It lies about three miles from the coast. The Persians are said to resort hither habitually for the study of Arabic, under the Shuats, the disciples of Ali. Another of these islands is Arad, divided by an isthmus into two parts, the principal of which is called Samoki, and has a small town, Mahared. A third island, sometimes noticed in the Eastern maps, is Gutter Sahari, called by the English, Meritan Rock. The earliest time of fishing is in April, and the latest in October. The pearls taken at Baharen, though not so white as those of Ceylon or Japan, are much larger than those of the former place, and more regularly shaped than those of the latter. They have a yellowish color; but have also this good quality, that they preserve their golden hue, whereas the whiter kind lose much of their lustre by keeping, especially in hot countries. Those of deeper color are generally bought by the Mahrattas, and the paler are transported through Bassora and Bagdad all over Asia. It is said to be on the whole the richest and most productive pearl fishery in the world; and to average a profit to the individuals who farm it of £100,000 per annum. The oyster banks, lying fifteen or twenty feet below the surface, stretch from about 25° to 26° 40′ N. lat., and the shells from two to ten inches in diameter, are considered valuable, as well as the pearls. It is a practice with those who are employed in opening the shells, to put the finer pearls into their mouths, believing that this adds to their brilliancy; and the fishermen always anticipate success after copious rains. Latterly the produce of the fishery has in some measure declined, in consequence of the English markets for the Ceylon fishery being transferred to the straits of Manaar; and the pearls are chiefly sent to Surat.

BAHARY, a town of Sennaar, fifteen miles south-east of that place.

BAHAS, a town of Arabia, in the kingdom of Yemen, near the Red Sea, sixteen miles N.N.W. of Loheia. Lat. 15° 59′ N.

BAHATRICALLY, a town of Cochin, with a pagoda, twenty-three miles S. S. E. of Cochin.

BAHBEIT, Balbeit, or Bhabeit, a ruined place in the Delta of Egypt, where there are the remains of a magnificent marble temple. Pococke supposes it to have been a temple of Isis; but this is disputed by D'Anville and Savary. The figures on the basso relievo are beautiful, but ill drawn. Pococke supposes Bahbeit to be the ancient Busiris. Seven miles S. S. W. of Mansora.

BAHBELGONGE, a town of Hindostan, in the country of Baglana, situated on the river Godavery, sixty miles east of Nassuck, sixty-five west of Aurungabad. Long. 74° 52′ E., lat. 19° 43′ N.

BAHHREIN, or Ar'du'l Bahrein (the land of the two Seas), is the name of a province of Arabia, between Omàn and Basrah. It is called also Hajar and Lahsà, or El-Ahsà. This district is bounded by the Arabian desert on the north; by Nejed on the west; by the sea on the east; and by Omàn on the south. It appears to be in a flourishing condition; and is governed by the Arabs of the tribe of Benì Khálid. The principal towns are on the coast, viz. 1. Lahsà, or Hajar, the residence of the sheik, or head of the tribe. 2. Katif, a sea-port, about twenty miles from the islands of Al Bahreïn. It is inhabited by people employed in the pearl-fishery. 3. Coweït, or Korein (Græn), sixty or seventy miles from Zobeïrch, Old Básrah. It is populous, and maintained, like other places on this coast, by the pearl-fishery.

BAHIA de Todos los Santos, a province and captainship of Brasil, extending to a considerable distance along the coast; being bounded on the north by the St. Francisco, which runs into the sea in lat. 11° S., and on the south by the province of Minas Geraes, including the district of Ilheos, forming a separate province. The climate is always warm, but is refreshed by the sea-breeze. The soil is peculiar, and those parts between the mountains and the sea are esteemed the best in Brasil for the growth of the sugar-cane. It is also well adapted for tobacco and cotton. Coffee is grown in great quantities, but the quality is inferior.

Bahia, or St. Salvador, the capital of the above province, is populous and opulent; and the second city in Brasil. It is strong by nature and well fortified; and was, for two centuries, the residence of the governor-general of Brasil. It is still an archiepiscopal city; and, including its suburbs, is about four miles long. The upper town is situated upon an eminence, and the lower, which consists principally of a single street, parallel to the beach, at its western base. Here is the chief seat of its commerce, a dock-yard, and a marine arsenal. The streets of the upper town are so steep that carriages can rarely be used. The churches, chapels, and convents, of Bahia are splendid structures; and with the archbishop's palace, the mint, and the governor's residence, are the first and most conspicuous objects that meet the eye of a stranger. The grand church, formerly belonging to the jesuits, is by far the most supurb structure in this city It is entirely composed of European marble, imported at an immense expense. The wood-work of the altar is inlaid with tortoise-shell, and covered with paintings, gilding, and a profusion of ornaments. The chief commerce of Bahia is in linen, and other kinds of cloth, hats, silk and thread, stockings, grain, rice, flour, biscuit, wine, oil, slaves, butter, cheese, bacon, and household furniture; for which gold, sugar, tobacco, skins, hides, Brasil wood, balsam, and several kinds of drugs, are exported. The population, including the suburbs, has been lately estimated at 100,000, about 30,000 of whom are whites, and the rest mulattoes and negroes. It stands in 12° 59′ S. lat., and longitude 37° 23′ W.

Bahia, a province of the island of Luzon, one of the Philippine islands, so called from a lake in the neighbourhood, which is said to be ninety miles in circumference.

Bahia de Chetumel, or Hanover Bay, a bay on the east coast of the peninsula of Yutucan, in the bay of Honduras.

Bahia, Honda, a large, well sheltered harbour of the island of Cuba, on the north side, which has fifteen and ten fathoms of water in the bay, eight at the entrance into the harbour, and

anchorage in four and five fathoms. Long. 83° 6′ W., lat. 22° 58′ N.

BAHIE, or Bahei, an island on the coast of Arabia, in the Red Sea. Also a small town opposite to it on the shore.

BAHIOUDA, an extensive desert district to the north of Sennaar, between that country and Dongola.

BAHIR, a Hebrew term, signifying famous or illustrious, but particularly applied to a book of the Jews, the most ancient of the Rabbinical works, and which treats of the profound mysteries of the Cabbala.

BAHIRA, Bahri, or Rif, or the maritime province, a name given by the Arabian geographers to the Delta of Egypt, and the districts immediately adjoining it east and west. It contains Alexandria, Rosetta, Damietta, Menuf, and Mansoura.

Bahira, among the ancient Arabs, a name given to one of the four kinds of camels or sheep, which, according to their religion, were turned out at liberty with an ear mark, no longer to be used for service like other cattle. The bahira, with the sabahi, wasita, and hami, were abolished by Mahomet.

BAHLINGEN, a large and well built village in the grand duchy of Baden, circle of the Treisam, upper bailiwic of Hochberg. It contains 1620 inhabitants, who cultivate the vine to a great extent.

Bahn, a town of the Prussian states, in Further Pomerania, and circle of Greifenhagen. It contains about 1300 inhabitants, who derive their subsistence chiefly from tillage, the neighbouring country being very fertile; straw hats are also manufactured here. Twenty miles S.S.W. of Stargard, thirty-two north of Custrin.

Bahooan, a small island in the Sooloo archipelago. Long. 120° 58′ E., lat. 6° 9′ N.

BAHOUACHE, Dian, the title of the sovereign of Anossi. See Anossi.

BAHRABAD, a town of Persia, in the province of Khorassan, ten miles north of Sebsvar.

BAHR Belame, or river without water, a deep valley in the west of Egypt, supposed to have anciently formed a canal of communication between Lake Mœris (Faioum), and the Lake Mareotis. See Barrai.

BAHRDT (Charles Frederick), a German writer, born at Bischofswerda, in 1741. He studied at Leipsic, where his father was professor of divinity, took the degree of A. M., and was appointed his father's deputy. In consequence of an amour he was obliged to leave Leipsic; and settled at Erfurt, as professor of Biblical antiquities. Here in 1769 he published An Essay towards a system of the Doctrines contained in the Bible, in which several heterodox opinions were broached. He soon after left Erfurt, and went to Giessen in Hesse, where he published a number of theological tracts, abounding with extravagancies, confidently maintained. From Giessen he removed to Durkheim, in 1774, and here count Von Leiningen Dachsburg appointed him his preacher, and gave him a house for a seminary of education, designated the Philanthropium, which was opened in 1777. To obtain pupils, Bahrdt travelled to Holland and England; but on his return, finding a prosecution had been commenced against him at Vienna, he fled to Prussia. Some time after he settled at Halle, where he became an avowed deist, and commenced tavern-keeper, and farmer. At Halle he instituted a new society of freemasons, on account of which he lay twelve months in prison, but afterwards continued his business as a landlord. He died in 1792.

Bahr el Abiad, or the White River, a name given to the real Nile, near its first origin; the sources of which in the African Alps of Kumri remain to be explored.

Bahr el Azrek, Blue River, or Abyssinian Nile, has its chief spring in a small hillock, situated in a marsh, and joins the Bahr el Abiad, or true Nile, about lat. 16° N.

Bahr el Accaba, an arm of the upper extremity of the Red Sea, penetrating into Arabia.

Bahr el Sowda, a name said to be given to the lake of Antioch.

BAHRY, a town of Hindostan, in the dominions of the rajah of Dhoulpore, 10 miles north of the river Chumbul.

BAHURIM, a city of the Benjamites, about a mile or two north-east of Jerusalem. Ahimaz and Jonathan hid themselves in a well in this town, when pursued by Absalom's messengers.

BAJA, or Baiæ, an ancient village of Campania, in Italy, between the promontory of Misenum and Puteoli, on the Sinus Baianus; famous for its natural hot-baths, which served the wealthier Romans for the purposes of medicine and pleasure. The variety of these baths, the softness of its climate, and the beauty of its landscape, captivated the minds of opulent nobles, whose passion for bathing was unbounded. The wearing of linen, and the disuse of ointments, render the practice less necessary in modern life; but the ancients performed no exercise, and engaged in no study, without previous ablution, which at Rome required an enormous expense in aqueducts, stoves, and attendants: a place, therefore, where waters naturally heated to every degree of warmth bubbled spontaneously out of the ground, in the pleasantest of all situations, was such a treasure, as could not be overlooked. Baiæ possessed these in the highest perfection; its easy communication with Rome was also a point of great weight. Hither at first retired for a temporary relaxation the mighty rulers of the world, to string anew their nerves and revive their spirits, fatigued with bloody campaigns and civil contests. Their habitations were small and modest; but soon increasing luxury added palace to palace, till ground was wanting for the vast demand; enterprising architects, supported by immense wealth, now, therefore, carried their foundations into the sea, and drove that element back from its ancient limits. It has since taken ample revenge, and recovered much more than it ever lost. From being a place of resort for a season, Baiæ grew up to a permanent city: whoever found himself disqualified by age, or infirmity, for sustaining any longer an active part on the political theatre, or from an indolent disposition, sought a place where the pleasures of a town were combined with the sweets of a rural life: whoever wished to withdraw from the dangerous

neighbourhood of a court, or the baneful eye of informers, flocked thither, to enjoy life untainted with fear and trouble. The affluence of wealthy inhabitants rendered Baiæ, therefore, as much a miracle of art as it was before of nature: its splendor may be inferred from its innumerable ruins, heaps of marbles, mosaics, stucco, and other precious fragments of taste. It flourished in full glory down to the days of Theodoric, the Goth; but the destruction of its enchanted palaces followed quickly upon the irruption of the northern conquerors, who sacked and burnt all before them, and destroyed or dispersed the whole race of Roman nobility. Moles and buttresses were now torn asunder and washed away; promontories, with the proud towers that once crowned their brows, undermined and tumbled headlong into the deep, where, many feet below the surface, pavements of streets, foundations of houses, and masses of walls are still to be descried. Internal commotions of the earth contributed also largely to this general devastation: and mephitic vapors and stagnated waters have converted this favorite seat of health into the abode of pestilence, at least during the estival heats. Yet Baiæ in its ruined state, and stripped of all its ornaments, presents many beautiful and striking subjects for the pencil. It lies in the Terra di Lavoro, twelve miles west of Naples, and two from Puzzuolo. Don Pedro, the viceroy of Charles V. erected a castle on a neighbouring eminence to defend the harbour; and about a century ago, another was built on an island adjacent, which communicates to the shore by a bridge.

Baja, Baia, Bayjah, or Begia, a town of the kingdom of Tunis in Africa, supposed to be the ancient Vacca of Sallust, and Oppidum Vaggenese of Pliny. The Tunisians say that if there was in the kingdom such another town as this for plenty of corn, it would become as cheap as sand. It has a great annual fair, to which the most distant Arabian tribes resort with their families and flocks. Notwithstanding this, the inhabitants are very poor, and great part of the land about the town remains uncultivated. The town stands on the declivity of a hill, on the road to Constantina, about ten leagues from the northern coast, and thirty-six south-west of Tunis. On the highest part is a citadel that commands the place, but is of no great strength. The walls were raised out of the ruins of the ancient Vacca, and have some ancient inscriptions.

Baja, or Baya, a populous market town of Hungary, on the Danube, thirty-five miles north-west of Esseck. It has a Catholic and Greek parish church.

Baja, in entomology, a species of phalæna, (noctua), of the middle size, that inhabits Europe. It feeds on the deadly night shade.

Baja de Rama, a town of European Turkey, in Walachia, district of Mehedinza, situated on the river of the same name.

BAIABAD, a town of Asiatic Turkey, in Natolia, twenty-eight miles south-east of Kastamoni.

BAIAC, a town of Asiatic Turkey, in Natolia, thirty miles south-east of Kutayeh.

BAJAD, in zoology, a species of silurus.

BAJADOR, Cape, a cape on the west coast of the island of Luzon, being its extremity. Long. 120° 40′ E., lat. 18° 40′ N.

BAJADOUR, in old records, a carrier or porter.

BAJANA, in conchology, a species of venus found on the shores of Brasil.

BAIANUS Lacus, a lake, or bay, mentioned by Tacitus, which some suppose to be the lake Lucrinus, and others the bay of Baiæ.

Baianus Sinus, or Baiarum Portus, a bay of Naples, so called from Baiæ, which was enlarged by Augustus, by giving entrance to the sea into the Lacus Lucrinus and Averni. He ordered it to be called Portus Julius apud Baias. The modern name is Golfo di Pozzuolo. See Pozzuolo.

BAJAPOUR, a town of Baglana, Hindostan, on the river Godavery, twenty miles east of Bahbelgong.

BAIAS, or Balæ, a town of Syria, at the north-east extremity of the bay of Alexandretta, supposed to be the ancient Issus. On the hills fronting it, are the ruins of a triumphal arch, or of some other structure of gray marble. It is sixteen miles from Alexandretta, and the fine gardens round the town supply Aleppo with oranges and lemons. In a small bay, to the north of the town, are seen the ruins of an ancient port, which is now much exposed to the south-west winds, which are very dangerous here. On the south side there is a mountain torrent, the bed of which is conjectured to have been the boundary between Syria and Cilicia.

BAJAZET I. emperor of the Turks, succeeded Amurath I., A. D. 1373. He was a renowned warrior, but a tyrant. In the beginning of his reign he was very successful. In 1393 he had conquered all Thrace, Macedonia, Thessaly, and the greater part of Mysia and Bulgaria; and in 1396 he brought an army of 300,000 men against Emanuel II. emperor of Constantinople, whom he defeated, and slew 20,000 of the Christians, but not without considerable loss on his own side. But in 1397 Tamerlane, or Timour Beg, the celebrated prince of the Tartars, brought an army against him of 400,000 horse and 600,000 foot; and having overcome him in a pitched battle, wherein 200,000 Turks were slain, took Bajazet himself prisoner, and exposed him, it has been said, in an iron cage, the fate he had destined for his adversary, if he had been the victor. This story, however, has been rejected as a fable by many modern writers. Mr. Gibbon has given the following narrative of this memorable transaction: 'No sooner was Timour informed that the captive Ottoman was at the door of his tent, than he graciously stepped forward to receive him, seated him by his side, and mingled with just reproaches a soothing pity for his rank and misfortunes. 'Alas!' said the emperor, 'the decree of fate is now accomplished by your own fault: it is the web which you have woven; the thorns of the tree which yourself have planted. I wished to spare, and even to assist, the champion of Moslems: you braved our threats, you despised our friendship; you forced us to enter your kingdom with our invincible armies. Behold the event. Had you vanquished, I am not ignorant of the fate which you reserved for myself

and my troops. But I disdain to retaliate: your life and honor are secured; and I shall express my gratitude to God by my clemency to man.' The royal captive showed some signs of repentance, accepted the humiliation of a robe of honor, and embraced with tears his son Mousa, who, at his request, was sought and found among the captives of the field. The Ottoman princes were lodged in a splendid pavilion; and the respect of the guards could be surpassed only by their vigilance. On the arrival of the haram from Boursa, Timour restored the queen Despina and daughter to their father and husband; but he piously required that the Servian princes who had hitherto been indulged in the profession of Christianity, should embrace without delay the religion of the prophet. In the feast of victory, to which Bajazet was invited, the Mogul emperor placed a crown on his head and a sceptre in his hand, with a solemn assurance of restoring him with an increase of glory to the throne of his ancestors. But the effect of this promise was disappointed by the sultan's untimely death: he died of apoplexy at Akshehr, the Antioch of Pisidia, about nine months after his defeat. The victor dropped a tear over his grave. His body, with royal pomp, was conveyed to the mausoleum which he had erected at Boursa; and his son Mousa, after receiving a rich present of gold and jewels, of horses and arms, was invested, by a patent in red ink, with the kingdom of Anatolia. Such (continues the historian) is the portrait of a generous conqueror, which has been extracted from his own memorials, and dedicated to his son and grandson nineteen years after his decease; and at a time when the truth was remembered by thousands: a manifest falsehood would have implied a satire on his real conduct. On the other hand, of the harsh and ignominious treatment of Bajazet there is also a variety of evidence. The Turkish annals, in particular, which have been consulted or transcribed by Leunclavius, Pococke, and Cantemir, unanimously deplore the captivity of the iron cage; and some credit may be allowed to national historians who cannot stigmatise the Tartar without uncovering the shame of their king and country.'

BAJAZET II. emperor of the Turks, the youngest son of Mahomet II. who took Constantinople, succeeded his father, A. D. 1480. Like him too he was a great conqueror. In 1484, he laid waste Wallachia: in 1486, he subdued the Getæ: in 1491, he took Epidamnum in Sclavonia: in 1493, he defeated the Christians in Croatia, in an obstinate and bloody battle, wherein he lost 10,000 of his own troops: in 1498, he over-ran Russia and Dalmatia, with 70,000 men; and, in 1500, he took Modon, in the Morea, from the Venetians. He died in 1512.

BAICHA, two rivers of Siberia, flowing into the Turuchan, thirty-two and fifty-six miles north-west of Turuchansk.

BAIDEAH, a valley in the great road from Cairo to Suez, at the northern extremity of which Suez stands.

BAIDHA, a town of Arabia, in the province of Hedjas, thirty miles north-west of Vadilkova.

BAIDYNATH, a small town of Hindostan, in the Kemáon hills, celebrated for an ancient temple, dedicated to the Hindoo god of medicine, and much frequented by pilgrims.

BAIEU, in zoology, the name of the cervus Mexicanus, or Mexican stag, in Bancroft's Guiana, &c.

BA'IGNE, *v. a.* *Bagner*, Fr. To drench; to soak: a word out of use.

> The women forslow not to *baigne* them, unless they plead their heels, with a worse perfume than Jugurth found in the dungeon. *Carew's Survey of Cornwall.*

BAJITH, a city of Moab, mentioned in Isaiah xv. 2. whither the king went to bewail the state of his nation, and supplicate aid from his idols.

BAIKAL, a large lake of Siberia, lying between 52° and 55° lat. N. It is reckoned to be 550 versts, or 318 German miles in length; but only about thirty versts broad, and in some places not above fifteen. It is environed on all sides by high mountains. In one part of it, which lies near the mouth of the river Barguzin, it throws up an inflammable sulphureous liquid called naptha, which the people of the adjacent country burn in their lamps. There are likewise several sulphureous springs near this lake. Its water at a distance appears of a sea-green color: it is fresh; and so clear that objects may be seen in it several fathoms deep. It does not begin to freeze till near the end of December, and thaws again about the beginning of May; from which time till September, a ship is seldom known to be wrecked on it; but by the high winds which then blow, many shipwrecks happen. The fishery on the shores begin in May; and the southern shore is divided into districts, and farmed out by the government. This lake is called by the Russians Swætoie More, or the Holy Lake; and Dalai Nor by the Tartars. When it is frozen over, people travel upon it in the road to China; camels have for this purpose a particular kind of shoes, sharp at the bottom, and the oxen have sharp irons driven through their hoofs, without which it would be impossible for them to pass. The shores and islands, consisting of granite rocks, called the Yablonian and Tunkinski chain, running from east to south-west, are well wooded, and form, by their frequent projections into the lake, bays and promontories, but with little good anchorage. The high road from Irkutsk to Kiækhta, passes along its southern shores. On the western shore copper has been found. Its depth, where greatest, is from eighty to 490 fathoms, but in some places it is unfathomable, and so variable that it has been conjectured with great probability to have arisen from a deep rent in the mountains, occasioned by an earthquake. Under the waters of this lake, grows a peculiar species of sponge, called by the Russians morskaya suba, or sea-sponge, the spongia baicalensis of Pallas. It is used for giving the first polish to metals. The common seal (phoca vitulina) seldom found in fresh water, or at a distance from the ocean, is taken here in April, basking on the ice, and the sale of their skins is a source of considerable profit. It yields a sort of blubber, so rank that even ravens will not touch its carcase; yet its oil is highly esteemed and purchased by the Chi-

nese. The baikalensis, a species of callionymus that inhabits the deep parts of the lake, is about nine inches long, soft, slender, and rather compressed; and has ventral fins; of carp, tench, sturgeon, devil's lampreys, (salmo oxyrrynchus), lenki (salmo salvelinus), there is abundance; the most important fish is the omul, or migratory salmon, somewhat resembling the herring. They are taken in October, and being dried by the frost, can be conveyed fresh almost to any distance. The climate around this lake *is* extremely severe; in the midst of summer frosty nights being common; and snow, as early as August, falling on the neighbouring mountains. The vegetable productions are principally the pinus cembra, empetrum nigrum, and pyrola uniflora, the silky knotgrass (polygonum sericeum), a beautiful plant, and the triticum litorale, which the peasants call dikaya koch, wild barley. Rivers flowing into the lake Baikal are, on the north side, in lat. 55° 51′ the Upper Angara, on the east the Barguzin, in latitude 54°. At its mouth is the Cape, called the Holy Promontory; and on the west, the Tunga, Selenga, and Buguldeika, the last of which discharges itself by three mouths. The only outlet is the Lower, or Greater, Angara, which rushes from the lake, in lat. 50° 54′ N. and long. 105° E. with great impetuosity, and joins the Yenisei near Ust Tungurskoyé in north lat. 58°. The channel through which it quits the lake is more than a mile broad.

BAIKALITE, in mineralogy, a variety of pyroxene, found near the lake Baikal in Siberia. See PYROXENE.

BAIKALENSIS. See BAIKAL.

BAIL′, *n. s.* & *v. a.* } Of this word the ety-
BAIL′ABLE, *adj.* } mologists give many derivations; it seems to come from the French *bailler*, to put into the hand; to deliver up, as a man delivers himself up in surety. '*Bail* is the freeing or setting at liberty one arrested or imprisoned upon action either civil or criminal, under security taken for his appearance. There is both common and special *bail*; *common bail* is in actions of small prejudice, or slight proof, called common, because any sureties in that case are taken; whereas, upon causes of greater weight, or apparent speciality, *special bail* or surety must be taken. There is a difference between *bail* and mainprise; for he that is mainprised is at large, until the day of his appearance: but where a man is *bailed*, he is always accounted by the law to be in their ward and custody for the time; and they may, if they will, keep him in ward, or in prison at that time, or otherwise at their will.'—*Cowell*. A bail is therefore a surety or bondsman; one who gives surety for another. Bailable relates to the less atrocious offences, where security for the appearance of the offender may be legally offered and accepted. To give or to admit to bail, is to render or to accept the security which the law prescribes in a bailable case. In Spenser the word figuratively used to signify power or jurisdiction.

So did Diana, and her maydens all,
Use silly Faunus now within their *baile*. *Spenser.*

Let me be their *bail*.——
They shall be ready at your highness' will,
To answer these suspicions.——
Thou shalt not *bail* them. *Shakspeare.*
They are not *bailable*,
They stand committed without *bail* or mainprize.
B. Jonson.
Worry'd with debts, and past all hopes of *bail*,
The unpity'd wretch lies rotting in a jail.
Roscommon.
And bribe with presents, or, when presents fail,
They send their prostituted wives for *bail*.
Dryden.

BAIL, is originally derived from the Greek, βαλλειν, to deliver, and so called because by means of it, the party restrained is delivered into the hands of those that bind themselves for his forthcoming, in order to a safe keeping or protection from prison; and the end of the bail is to satisfy the condemnation and costs, or render the defendant to prison. The commitment of a person being only for safe custody, wherever bail will answer the same intention, it ought to be taken; as in most of the inferior crimes: but in felonies, and other offences of a capital nature, no bail can be a security equivalent to the actual custody of the person. For what is there that a man may not be induced to forfeit, to save his own life? or what satisfaction or indemnity is it to the public, to seize the effects of him who has bailed a murderer, if the murderer himself be suffered to escape with impunity? Upon a similar principle, the Athenian magistrates, when they took a solemn oath never to keep a citizen in bonds that could give three sureties of the same quality with himself, did it with an exception to such as had embezzled the public money, or had been guilty of treasonable practices.

Bail may be taken either in court, or, in some particular cases, by the sheriff or other magistrate; but most usually by the justices of the peace. To refuse or delay to bail any person bailable, is an offence against the liberty of the subject, in any magistrate, by the common law; as well as by the statute Westm. 1. 3 Edward I, c. 15, and the habeas corpus act, 31. Car. II. c. 2. And, lest the intention of the law should be frustrated by the justices requiring bail to a greater amount than the nature of the case demands, it is expressly declared by statute 1. W. and M. st. 2. c. 1. that excessive bail ought not to be required; though what bail shall be called excessive, must be left to the courts, on considering the circumstances of the case, to determine. And on the other hand, if the magistrate takes insufficient bail, he is liable to be fined, if the criminal does not appear.

In civil cases, every defendant is bailable But it is otherwise in criminal matters. Regularly, all offences either against the common law or act of parliament, that are below felony, the offender ought to be admitted to bail, unless it be prohibited by some special act of parliament. By the ancient common law, before and since the Conquest, all felonies were bailable, till murder was excepted by statute: so that persons might be then admitted to bail almost in every case. But the statute W. 1. 3 Ed. I. c. 15. takes away the power of bailing in treason, and in divers instances of felony. The statutes 23 Hen. VI. c. 9.

and 1 & 2 Ph. & Mar. c. 13. gave farther regulations in this matter: and upon the whole we may collect, that no justices of the peace can bail, 1. Upon an accusation of treason: nor, 2. Of murder: nor, 3. In case of manslaughter, if the prisoner be clearly the slayer, and not barely suspected to be so; or if any indictment be found against him: nor, 4. Such as, being committed for felony, have broken prison; because it not only carries a presumption of guilt, but is also superadding one felony to another: 5. Persons outlawed; 6. Such as have abjured the realm: 7. Persons taken with the mainour, or in the act of felony: 8. Persons charged with arson: 9. Excommunicated persons, taken by writ de excommunicato capiendo: all which are clearly not admissible to bail by the justices. Others are of a dubious nature, as, 10. Thieves openly defamed and known: 11. Persons charged with other felonies, or manifest and enormous offences, not being of good fame: and, 12. Accessaries to felony, that labor under the same want of reputation. These seem to be in the discretion of the justices, whether bailable or not. The last class are such as must be bailed upon offering sufficient surety; as, 13. Persons of good fame, charged with a bare suspicion of manslaughter, or other infamous homicide; 14. Such persons being charged with petit larceny or any felony, not before specified: or, 15. With being accessary to any felony. Lastly, it is agreed, that the court of king's bench (or any judge thereof in time of vacation) may bail for any crime whatsoever, be it treason, murder, or any other offence, according to the circumstances of the case. And herein the wisdom of the law is very manifest. To allow bail to be taken commonly for such enormous crimes, would greatly tend to elude the public justice; and yet there are cases, though they rarely happen, in which it would be hard and unjust to confine a man in prison, though accused even of the greatest offence. The law has therefore provided one court, and only one, which has a discretionary power of bailing in any case; excepting only even to this high jurisdiction, and of course to all inferior ones, such persons as are committed by either house of parliament, so long as the session lasts; or such as are committed for contempts by any of the king's superior courts of justice.

In civil processes, in which an actual arrest and imprisonment is not now allowed, such as suits for the recovery of sums of less amount than £15, or of damages, the precise amount of which cannot be shown before the jury shall have estimated them (as in actions of trespass, or for any injuries, either personal or pecuniary, but to an unascertained amount), no arrest can be made, and, consequently, no bail need be demanded. But inasmuch as the writ, which now forms the commencement of all civil actions, was formerly a process issued against a defendant, who had neglected to comply with certain anterior summonses, and who was thereby liable to imprisonment, in order to secure his appearance in court on the day whereon the sheriff was to make his return of the writ, as having by his previous contempt of legal authority, shown himself not to be trusted at large; it was a consequence that he could not avoid imprisonment, but by giving bail. And, as by the tenor of the writ, and by fiction of law, a defendant in all cases is now held to be in the same circumstances, it is necessary that he should put in common bail: which is a mere formal entering of the names of two fictitious persons, John Doe and Richard Roe, as his sureties.

In actions for a sum certain, if the plaintiff make affidavit that that sum is fifteen pounds, or upwards, the defendant must give what, technically, in distinction from the fictitious bail of which we have just spoken, is called special bail: that is, in order to avoid imprisonment, he must find two real and responsible persons to be sureties for him. As soon as an arrest has been effected, these sureties give a bond to the sheriff, for the defendant's appearance on the day of the return of the writ, and this is called bail to the sheriff, or bail below. On that day, or within four, or in some cases, six or eight days after, they enter into recognizances, that if judgment be given against the defendant, he shall pay the damages and costs, or surrender his person. This is called giving bail above, or bail to the action. If the plaintiff requires it, they must justify, as it is termed, or perfect the bail; that is, they must swear (if in London or Middlesex, before a judge; or, in the country, before commissioners appointed for that purpose), that they have the requisite qualifications: which are, the being housekeepers, and worth, each of them, the full sum for which they become bail, after payment of all their debts. Thus securing the plaintiff the person or property of his defendant, if the latter is insufficient to discharge the claim, the bail are entitled to apprehend him by warrant, or in any other way, to surrender his person.

When a defendant has failed to put in bail above, and the sheriff is unable to produce his body, that officer is answerable to the plaintiff for the sum for which the bail below was given: and he has his own remedy against the bail, by action upon their bond. But, as a simpler plan, the sheriff usually assigns the bond to the plaintiff, and he proceeds upon it. It is, however, optional with the plaintiff to accept or refuse the assignment.

Bail-Bond, an obligation entered into by one or more sureties, upon giving bail, insuring the defendant's appearance at the time appointed by the court.

BAILEMENT. See Bailment.

BAILEY (Nathan), an English lexicographer, who kept a school at Stepney, where he died June 27, 1742. He published Dictionarium Domesticum, or a Household Dictionary, 8vo; The Antiquities of London and Westminster, 12mo; and several school books: but his principal work was an Etymological English Dictionary, which first appeared in octavo, and being enlarged into a folio, volume became the basis of Dr. Johnson's dictionary.

BAILIE, in Scots law, a judge anciently appointed by the king over such lands, not erected into a regality, as happened to fall to the crown by forfeiture or otherwise: now abolished. It is still the title of one or more magistrates in royal boroughs, and of the judge appointed by a baron

over lands erected into a barony. There are four bailies in the town council of Edinburgh, three in those of Glasgow, Aberdeen, Perth, &c. See Law.

BAI'LIFF, *n. s.* } Borrowed from the Fr.
BAIL'IWICK, *n. s.* } *baillie*. In our old voca-
BAILY, *n. s.* } bularies written baily, and so a steward is still called in many places. Bailiff is the person who sustains the office; bailiwick is the place of his jurisdiction; and baily is the office or jurisdiction itself.

Every beggarly corporation affords the state a mayor or two *bailiffs* yearly. *B. Jonson.*

Bailiff, Ballivus, from the French word bailli or bailiff, that is, præfectus provinciæ: and as the name, so the office itself was answerable to that of France, before the revolution; where there were eight parliaments, which were high courts, from whence there lay no appeal; and within the precincts of the several parts of that kingdom, which belonged to each parliament, there were several provinces to which justice was administered by certain officers called bailiffs.—In England there are several counties in which justice has been administered to the inhabitants, by the officer now called sheriff or viscount (one of which names descended from the Saxons, the other from the Normans); and though the sheriff is not called bailiff, yet it is probable that was one of his titles, because the county is often called balliva. And in Magna Charta, cap. 28. and 14 Ed. 3. c. 9. the word bailiff seems to comprise both sheriffs and bailiffs of hundreds. As the realm is divided into counties, so every county is divided into hundreds; within which, in ancient times, the people had justice administered to them by the officers of every hundred. But now the hundred courts, except certain franchises, are swallowed in the county courts; and the bailiff's name and office is grown into contempt, they being generally officers to serve writs, &c. within their liberties. In other respects, however, the title is still in esteem: for the chief magistrates in divers towns are called bailiffs, or baillies; and sometimes the persons, to whom the king's castles are committed, are termed bailiffs, as the bailiff of Dover Castle, &c. Of the ordinary bailiffs there are several sorts.

Bailiffs Errant, or Bailiffs Itinerant, are those whom the sheriff appoints to go up and down the country to serve writs and warrants, to summon county courts, sessions, assizes, &c. the sheriff being answerable for the misdemeanor of these bailiffs, they are usually bound in an obligation for the due execution of their office, and thence called bound bailiffs, which is vulgarly corrupted into a much more homely appellation.

Bailiffs of Boroughs, were magistrates anciently in cities and towns, answering, in some measure, to what, in later times were called portgrave, mayor, &c. Canterbury was a bailiff town 500 years before it was made a mayor town. Westminster, Southwark, Scarborough, &c. are all governed by bailiffs.

Bailiffs of Forests and Manors, direct husbandry, fell trees, gather rents, pay quitrents, &c.

Bailiffs of France, under the monarchy, were appointed over the provinces originally belonging to the crown.

Bailiffs of Franchises, or Bailiffs of Liberties, in England, are those bailiffs who are appointed by every lord within his liberty, to execute process and do such offices therein as the bailiff errant doth at large in the county.

Bailiffs of the Empire, were anciently vicars or regents of the empire; as appears from a letter of Henry of Flanders to pope Innocent III. wherein he says, the princes, barons, and knights have elected me ballivum imperii.

Bailiffs, Provincial, among the French, under the old despotism, were officers appointed in certain provinces or counties, with an authority somewhat like that of justices of assize, instituted by the dukes and counts in their several territories, after they had procured the inheritance of them. These acted in the name, and by the authority, not of the king as justiciaries, but of the dukes or counts who appointed them, and whose deputies they were.

Bailiffs, Royal, in France, were appointed by the king over provinces annexed to the crown.

Bailiffs, Sheriff's, in England, or sheriff's officers, are either, 1. bailiffs of hundreds, or 2. special bailiffs, and appointed over their respective districts, to collect fines; summon juries; attend the judges and justices at the assizes and quarter sessions; and to execute writs and processes in the several hundreds.

Bailiffs, Water, officers appointed in all port-towns, for the searching of ships, gathering the toll for anchorage, &c. and arresting persons for debt, &c. on the water.

BAILLI (David), painter of perspective views and portraits, the son of Peter Bailii, an artist of some note, was born at Leyden in 1584. Having acquired the rudiments of the art under his father, he improved under Verburg, and still more under Vandervoort, with whom he spent above six years. While with him, he copied a perspective view of the inside of a church, by Stenwyck, with such accuracy, that even Stenwyck himself could scarcely determine which was the original. He travelled through several parts of Italy to see the works of masters, and for a few years resided at Rome. The correctness of his drawing, and the delicate finishing of his pictures, have been much admired. He died in 1638.

BAILIWIC, Bailywick, or Bayliwick, balliva, in law, the jurisdiction of a bailiff over that liberty which is exempted from the sheriff of the county. Stat. 27th Eliz., ch. 12. Wood's Just. 206.

BAILLET (Adrian), a very learned French writer and critic, born in 1649, at Neuville near Beauvais. His parents being poor, he obtained his education by favor of the bishop of Beauvais who afterwards presented him with a small vicarage. In 1680 he was appointed librarian to M. de Lamoignon, advocate general to the parliament of Paris, of whose library he made a copious index, in thirty-five volumes folio. He died in 1706. His principal works are, A History of Holland, from 1609, to the peace of Nimiguen in 1679, 4 vols. 12mo. Lives of the Saints, 3 vols. folio, which he professed to have purged from fables. Jugemens des Savans, 9 vols. 12mo. and the Life of Des Cartes, 2 vols. 4to. which he also abridged to 1 vol. 12mo.

BAILLEUL, a town of France, in the department of the North, formerly very strong. It has been several times burnt by accident. It lies nine miles S.W. of Ypres.

BAILLIAGE, the office of a bailiff, or the place where he keeps his seat, and the territory subject to his jurisdiction; which last is also denominated Bailiwic.

BAILLIAGE, Water, an ancient duty received by the city of London, upon all goods and merchandises brought in or carried out of port.

BAILLIE (Robert), M. A. a presbyterian divine of Scotland, was born at Glasgow in 1599, and studied at that city; having received orders from Abp. Law, in 1622 he was chosen regent of philosophy at Glasgow, and some time after was presented to the church of Kilwinning, by the earl of Eglinton. In 1633, he declined the offer of a church at Edinburgh, but in 1638 was chosen a member of the famous assembly at Glasgow, which was a prelude to the civil war, and was a member of all the succeeding assemblies, excepting those which sat while he was at Westminster. In 1640 he was sent to London by the Covenanting Lords, to draw up an accusation against Apb. Laud. In 1642 he was appointed joint professor of Divinity in the University of Glasgow, with Mr. Dickson; which he preferred to similar offers from the other three universities. In 1643 he was one of the commissioners to the celebrated assembly of Divines at Westminster, and returned in 1646. When after the execution of Charles I. his son was proclaimed in Scotland, he was appointed by the assembly to wait on Charles II. at the Hague, and after the restoration was made principal of the university of Glasgow. He died in 1662, aged sixty-three.

BAILLIE (Matthew), M. D. a celebrated anatomist. He was the son of the Rev. James Baillie, professor of divinity at Glasgow, by the sister of Dr. William Hunter. He studied at Glasgow and Baliol College, Oxford, and afterwards became the pupil of his uncle. Being made physician to St. George's hospital, he succeeded Dr. Hunter as lecturer on anatomy, in conjunction with Mr. Cruickshank. He continued a public lecturer till 1799. Dr. Baillie was one of the physicians in ordinary to Geo. III. and Geo. IV. and long stood in the first rank among his medical contemporaries. He published The Morbid Anatomy of the most important parts of the Human Body, 8vo. 1793, subsequently enlarged and improved; a Series of Engravings tending to illustrate Morbid Anatomy; also a Description of Gravid Uterus; and contributed many important papers to the Philosophical Transactions and medical collections of his day. Dr. Baillie formed a valuable museum of anatomical specimens which he presented to the College of Physicians. He died in 1823, in the sixty-third year of his age; leaving by his wife, daughter of Dr. Denman, a son and a daughter.

BAILLIEBOROUGH, a town of Ireland, in the county of Cavan, forty-three miles from Dublin.

BAILLONE, in heraldry, a charge in coats of arms, representing a lion rampant, holding a staff in his mouth.

BAILLY (John Sylvian), a celebrated philosopher and astronomer, born at Paris in 1763 His family had been respectable as painters for several generations, and he had commenced his studies in the same profession; but he was too much bent on the pursuit of literature, to apply himself successfully. His early acquaintance with La Caille the celebrated geometrican, determined the science which was in future to engross his attention. The calculation of the comet which appeared in 1759, was his first labor. In 1763 he became a member of the Academy of Sciences; and in the course of the same year, published a reduction of La Caille's observations on the zodiacal stars in 1760 and 1761. He was next employed in considering the theory of Jupiter's satellites; and in 1766 published the results of his investigation, with the history of that part of astronomy. In 1771 he gave the world a very valuable memoir on the light of the satellites, marking their eclipses in a very precise and accurate manner. The genius of Bailly was not confined to abstract science, or profound physical speculations; it was equally brilliant in those departments of literature where the nicest discrimination of character and the most powerful eloquence is requisite. His eulogies upon Charles V. Corneille, Leibnitz, Moliere, Cook, La Caille, and Gresset, raised universal admiration. In 1775, he published at Paris the first volume of the History of Ancient Astronomy; and in 1778 the second. TheHistory of Ancient Astronomy, from the foundation of the Alexandrian school to the present age, followed in 1779. He next published Letters on the origin of the Sciences, and of the people of Asia; to which he added a series of Letters on the Atlantis of Plato and the ancient History of Asia; which he addressed to Voltaire. He was also very intimate with Buffon, till he opposed the election of the Abbé Maury into the French academy; to which Bailly had been chosen secretary in 1784. This year he was named one of the commission to investigate the nature of the animal magnetism of Mesmer, practised by Deslon. His report, which was presented to the Academy of Sciences, and has been since translated into English, contains the most satisfactory and decisive evidence upon the subject. It is highly valuable in developing the physical effects produced by moral causes. In 1785 he was admitted into the Academy of Inscriptions and Belles Lettres; and thus was at the same time a member of all the three academies of Paris, which none had been since Fontenelle. We must now leave the peaceable haunts of philosophy, and follow Bailly to the revolutionary stage, on which he acted a principal part. Here, though we behold him struggling with opposite interests in the midst of a lawless mob; zealous for freedom, and contending in its cause with enthusiasm, we hear not a charge of selfish motives, or want of integrity, brought against him by any party; yet he fell a sacrifice to that violence which nothing could control. In 1789 he was appointed deputy to the Tiers Etat, and was soon after elected president; a station which he held when the national assembly was constituted, and when the king issued his proclamation for dispersing

them. In the contest between the popular assemblies and the court, Bailly was zealous to maintain the rights of the people; and the famous oath to the members of the Tiers Etat, to resist tyrants and tyranny, and never to separate till they should obtain a free constitution, was dictated by him. Next day, the 14th of July, memorable for the taking of the Bastile, he was chosen mayor of Paris; and though in this high office he greatly promoted the different measures by which the popular party became victorious over the court, yet he is allowed to have discharged the arduous duties of it, at this trying juncture, with integrity, moderation, and firmness. The public mind was now, however, become like the ocean in a tempest: a people ever fond of novelty, free from the fetters of despotism, with enthusiastic and erroneous ideas of liberty, were every day more eager for a change, and could suffer no restraint. The disposition of the people to anarchy was evident, and Bailly, still anxious that the laws should be respected, imagined that, by the vigorous execution of them, tranquillity might be maintained. Deputies from the military insurgents at Nancy were arrested by his orders, and he firmly opposed Marat and Hubert in their proceedings. He entered into a society more select than that of the Jacobins' club; and used every argument that the king and the royal family might be allowed to go to St. Cloud. Thus he lost the confidence of the people; and being called by the national assembly to dismiss the tumultuous meeting, demanding the abolition of monarchy, on the 17th July, 1791, he ordered the soldiers to fire, which rendered him completely obnoxious to them. In the end of the same year, when the constituent assembly was dissolved, he therefore resigned his office, and retired to his philosophical studies. Yet a bloody proscription reached him; as an enemy to the republic he was seized, imprisoned, arraigned before a savage tribunal, summarily condemned, and executed in the fifty-seventh year of his age. He bore his sufferings with great magnanimity, though they were purposely lengthened out. To mark him as a conspirator, he was dressed in a red shirt, placed in a cart, with his hands tied behind his back; and though the rain poured incessantly on his head, the mob threw mud at him while he passed to the place of execution, and insulted him in the cruellest manner. As he ascended the platform, a person near him cried out in a sneering manner, 'Bailly you tremble.' 'Yes (answered he) but not with fear.' His person was tall, his countenance sedate, but striking. Scarcely any philosopher has appeared more eminent in the different branches of science and literature. While he filled the magisterial office, he gave away no inconsiderable part of his fortune to relieve the necessities of the poor. He left a wife whom he had married in 1787.

BAIL'MENT, *n. s.* The delivery of goods; or their consignment from one person to another, for the benefit of a third party. Sometimes also to be delivered back to the *bailor*, that is to him that so delivered them: sometimes to the use of the *bailee*, that is of him to whom they are delivered.

BAILMENT, in law, is a delivery of goods in trust, upon a contract, expressed or implied, that the trust shall be faithfully executed on the part of the bailee. Thus if cloth be delivered, or (in our legal dialect), bailed to a taylor to make a suit of clothes, he has it upon an implied contract to render it again, when made, and that in a workmanly manner. If money or goods be delivered to a carrier, to convey from Oxford to London, or from Glasgow to Edinburgh, &c. he is under a contract in law to pay, or carry them to the person appointed. If a horse or other goods be delivered to an inn-keeper or his servants, he is bound to keep them safely, and restore them when his guest leaves the house. If a man takes in a horse, or other cattle, to graze and pasture in his grounds, which the law calls agistment, he takes them upon an implied contract to return them on demand to the owner. If a pawnbroker receives plate or jewels, as a pledge or security for the repayment of money lent thereon, at a certain day, he has them upon an express condition to restore them, if the pledger performs his part, by redeeming them in due time; for the due execution of which contract, many useful regulations are made by statute 30 Geo. II. ch. 24. If a landlord distrains goods for rent, or a parish officer for taxes, these for a time are only a pledge in the hands of the distrainers; and they are bound by an implied contract in law to restore them on payment of the debt, duty, and expenses, before the time of sale, or when sold, to render back the overplus, &c. Sir William Jones, in his learned work on the law of bailments, distinguishes five species of this contract. 1. Depositum, or deposit, which is a bailment of goods to be kept for the bailor without reward. 2. Mandatum, or commission; a bailment of goods to be carried from place to place, or to have some act performed about them, without reward. 3. Commodatum, or loan for use; a bailment of a thing for a certain time, to be used by the borrower without paying for it. 4. Pignori acceptum, or pawn; a bailment of goods by a debtor to a creditor, in pledge as a security for the debt. 5. Locatum, or letting to hire; of which there are three subdivisions distinct enough to demand enumeration. (1.) Locatio rei, or bailment of a thing, to be used by the hirer for a reward. (2.) Locatio operis faciendi, or letting out of work and labor to be done, or care and attention to be bestowed, by the bailee, on the goods bailed for a reward. (3.) Locatio operis mercium vehendarum, or letting of care and pains in carrying the things bailed from place to place for a reward.

If a bailee refuse to return the things bailed upon a lawful demand, he becomes answerable for even the slightest neglect. If a guest be robbed by the servants or inmates of an inn, the inkeeper is responsible. And, if goods bailed to a common carrier be lost by any means, except by the act of God, or of the kings enemies, the carrier is bound to idemnify the owner.

BAILO, or BALIO, a title formerly given at Constantinople, to the ambassador of Venice residing at the Porte. The Venetian consuls at Aleppo, Alexandria, Smyrna, and other parts of the Levant, are also denominated bailo.

BAILOQUE, in commerce, or Balloque, a French name for the ostrich feathers that are used as ornaments without dyeing.

BAIL-PIECE, the parchment containing the recognisance entered into by those who give bail for the appearance of another.

BAILS, in sea-language, the hoops that bear up the tilt of the boat.

Bails, Clerk of the, is an officer belonging to the court of King's Bench: he files the bail-pieces taken in that court, and attends for that purpose.

BAILYBOROUGH, a market town of Cavan, Ireland, twenty-five miles from Dublin. Between this place and King's Court, is a pool on the summit of a mountain, much frequented for its anti-scorbutic virtues. Many bathe in the lake, and even rub the affected parts with the mud, which is of a greasy substance like tar. It has not been known to be frozen even in the severest winter.

BAIMALPOUR, a town of Bejapour, Hindostan, fourteen miles east of Satarah.

BAIN, a town of Brittany, in France, with 3450 inhabitants, and woollen manufactures; the head of a canton in the department of the Ille Vilaine, arrondissement of Redon, sixteen miles south of Rennes, and twenty-four south-west of Vitre.

BAINA, a market town of Hungary, in the county of Gran. It was formerly a considerable place.

BAINBRIDGE, a township of England, in the North Riding of Yorkshire, distant two miles from Askrigg, near the Ure, conjectured to have been a Roman station.

Bainbridge, Port, an inlet on the west coast of North America, extending about twenty miles northward. Long. of its west point, 212° 9½′ E. lat. 59° 55′ N.

Bainbridge (Dr. John), an eminent physician and astronomer, born at Ashby-de-la-Zouch, in 1582. He taught a grammar school for some years, and practised physic, employing his leisure hours in astronomy. At length he removed to London, was admitted a fellow of the college of physicians, and raised his character by his description of the comet in 1618. The next year Sir Henry Saville appointed him professor of astronomy at Oxford; and the masters and fellows of Merton college made him first junior, and then superior reader of Linacre's lecture. He died in 1643, leaving valuable MSS. preserved in the library of Trinity College, Dublin.

BAIOCCO, a copper coin current at Rome, equivalent to a tenth part of the julio, or a hundredth part of the ducat. It is worth about nine deniers, French money.

BAIRAM, or Beiram, a Turkish word which signifies a solemn feast. The Mahommedans have two Bairams, the great and the little.

Bairam, the Great, is properly that held by the pilgrims at Mecca, commencing on the tenth of Dhu Ihajie, when the victims are slain, and lasting three days. This is called by the Arabs, Id al adha, that is, the feast of sacrifice, as being celebrated in memory of the sacrifice of Abraham, whose son, God redeemed with a great victim. By European writers it is called the Lesser Bairam, as being less taken notice of by the generality of the people, who are not struck with it, because the ceremonies with which it is observed are performed at Mecca, the only scene of the solemnity. On this feast, after throwing little stones, one after another, into the valley of Mina, they usually kill one or more sheep, some a goat, bullock, or even a camel; and after giving a part thereof to the poor, eat the rest with their friends. After this, they shave themselves. The second day is a day of rest. On the third, they set out on their return home.

Bairam, the Little, is properly that held at the close of the fast Ramazan, beginning with the first full moon in the following month Shawal. This is called, in Arabic, Idal Fetz, or the Feast of breaking the Fast; by European writers, the Turkish Easter, because it succeeds Ramazan, which is their Lent, more usually the Great Bairam, because observed with great ceremony and rejoicing at Constantinople, and through Turkey, for the common people, to make amends for the mortification of the preceding month. The feast commencing with the new moon, the Mahommedans are very scrupulous in observing the time when the new moon commences; to which purpose, observers are sent to the tops of the highest mountains, who, the moment they spy the appearance of a new moon, run to the city, and proclaim Muzhdaluk! welcome news! as it is the signal for beginning the festivity.

BAIRDSTOWN, a post town of the United States, the capital of Nelson county, in the state of Kentucky. It is seated on the east side of Beech-Fork; thirty-five miles from Frankfort.

BAIR-MAN, or Bare Man, an old law term for an insolvent debtor, who was obliged to swear that he was not worth more than 5s. 5d.

BAIRNS part of gear, in the Scots law, i.e. the children's share of effects, is that portion which by the law falls to the children of a marriage, on the death of either of their parents; viz. two thirds when the father, and one third when the mother, dies first.

BAIROUT, or Bagreuth, formerly Berytus, a sea-port town of Syria situated on a plain in the pachalic of Saide, or Acre. There was formerly a harbour here, which is now choked up, nothing being seen of it but a pier, apparently of ancient construction, which will shelter a few boats. The town is surrounded by a wall, built by the famous Djezzar Pacha, after the place was bombarded by the Russians. With the same view he pulled down and rebuilt a high tower to the north-east. The streets of Bairout are narrow and irregular, and the suburbs nearly as large as the town. The environs are extremely agreeable, and they are laid out in gardens and plantations full of fine trees, especially mulberries. A stream descending from Mount Lebanon winds to the sea through the country. The population amounts to 7000 or 8000. It is the residence of a Greek, and a Maronite bishop; and there is a monastery of Capuchins. The staple commodity of commerce is raw silk, which is carried to Cairo, Aleppo, Damascus, and Europe. Earthen jars and jugs of a particular kind are also manufactured here; and are much esteemed from the nature of the clay. The cotton cloth is manufactured by the inhabitants

of the adjacent mountains, and exported in considerable quantity. The trade to Europe is chiefly managed by French and Italian merchants; but the place is the emporium to which the Druses and Maronites send their products, and in return receive rice, tobacco, coffee, and specie. It is, indeed, considered the chief town of the Druses. Agrippa, the grandson of Herod the Great, constructed a theatre and amphitheatre here, as well as baths, and no expense was spared in embellishing them. Four magnificent granite columns, of which three are within the precincts of the town, with other ancient buildings, attest its former grandeur. Bairout long remained in the sole possession of the Druses, and has only of late been united to the pachalic of Acre.

BAIT', *v. a.* & *n.* & *n. s.* baran, Sax. baitzen, Germ. *battre*, Fr. perhaps from buita, Goth. According to these different derivations, the meaning of this word varies. As derived from the Saxon and German it means to put meat upon a hook to tempt fish or other animals; or to supply food to one's self or horses. Johnson intimates that in this latter sense it is a corruption of bate, to abate speed on a journey. As derived from the French and Gothic it assumes a very different signification, namely to invite, to stir up, to attack with violence, to harass by the help of others, as we bait a boar with mastiffs, but a bull with bull-dogs. In hawking, the hawk is said to bait when she flutters or claps her wings, as if preparing to fly.

The kinges lawe wol no man deme
Anger liche withouten answere,
But if any man these misqu'eme
He shall be *baighted* as a bere,
And yet wel worse they wol him tere,
And in prison wollen him pende,
In gines and in other gere,
When that God woll, it may amende. *Chaucer.*

On mony a sory mele now may she *baite*,
After here dethe ful often may she waite,
Or that the wild waves wol hire drive,
Unto the place ther as she shal arive. *Id.*

Like a wilde bull that being at a bay,
Is *bayted* of a mastiffe and a hound,
And a curre dog that doe him sharpe assay,
On every side and beat about him round.
Faerie Queene.

What so strong,
But, wanting rest, will also want of might;
The sun, that measures heaven all day long,
At night doth *bait* his steeds the ocean waves among.
Spenser.

The pleasant'st angling is to see the fish
Cut with her golden oars the silver stream,
And greedily devour the treach'rous *bait*.
Shakspeare.

She steals love's sweet *bait* from fearful hooks. *Id.*

Are these thy bears? We'll *bait* thy bears to death.
Id.

All plum'd like estridges, that wing the wind;
Baited like eagles having lately bath'd;
Glittering in golden coats like images. *Id.*

A grove hard by, sprung up with this their change,
His will who reigns above, to aggravate
Their penance, laden with fair fruit like that
Which grew in Paradise the *bait* of Eve,
Us'd by the tempter. *Milton.*

Many sorts of fishes feed upon insects, as is well known to anglers, who *bait* their hooks with them.
Ray.

BAIT. See Angling.

Bait, White, in ichthyology, a small fish, which is caught in great plenty, from August 1. to October 1. by stat. 30. Geo. II. ch. 21, in the river Thames, near Blackwall, and is esteemed very delicious. They are the fry of some fish, and have been attributed to the shad, the sprat, the smelt, and the bleak-fish. Pennant observes, that it belongs to the genus of cyprinus, because it has only three branchiostegous rays, and one dorsal fin; its body is compressed like that of the beak; its usual length is two inches; the under jaw is the longest; the irides are silvery, and the pupil black; the dorsal fin consists of about fourteen rays; the side line is straight; the tail forked, and the tips black.

To Bait, in falconry, the action of a hawk when she claps her wings, or stoops to catch her prey.

BAITHOSUS, a Jew who, with Sadoc his fellow disciple, founded the sect of the Sadducees, denying a future state and resurrection. From Baithosus, they were for some time called Baithosæi as well as Sadducees, but are now only known by the latter denomination.

BAITING, the act of smaller or weaker beasts attacking and harassing greater and stronger; as the baiting of bulls or bears by mastiffs, or bull-dogs with short noses, that they may take the better hold. Utility has been pleaded in justification of bull-baiting; the chaffing and exercise of the animals making the flesh tenderer and more digestible. But a spirit of barbarism has the greatest share in supporting the sport: bulls are kept on purpose, and exhibited as standing spectacles for the public entertainment. It is a very popular amusement in Spain. In this sport, the chief aim of the dog is to catch the bull by the nose, and hold him down; to which end he will creep on his belly: the bull's aim, on the contrary, is, with equal industry, to defend his nose; in order to which he thrusts it close to the ground, where his horns are also in readiness to toss the dog. Bull-baiting was first introduced into England as an amusement in the reign of king John, about 1209.

BAJULUS, an ancient officer in the court of the Greek emperors. There were several degrees of bajuli; as, the grand bajulus, who was preceptor to the emperor; and the simple bajuli, who were sub-preceptors. The word is derived from the Latin verb bajulare, to carry or bear a thing on the arms or on the shoulders; and the origin of the office is thus traced by antiquaries. Children, and especially those of condition, had anciently, besides their nurse, a woman called gerula, as appears from several passages of Tertullian; when weaned, or ready to be weaned, they had men to carry them about and take care of them, who were called geruli and bajuli, a gerendo et bajulando. Hence it is, that governors of princes and great lords, were still denominated bajuli, and their charge or government bajulatio, even after their pupils were grown too big to be carried about. The word passed in the same sense into Greece.

Bajulus is also used by Latin writers in the several senses wherein we use bailiff.

Bajulus was likewise the title of a conventual

officer in the ancient monasteries, to whom belonged the charge of gathering and distributing the money and legacies left for masses and obits; whence he was also denominated bajulus obituum novorum.

Bajulus, in entomology, a species of cerambyx (callidium) that is found in the trunks of trees in the northern parts of Europe. The thorax is villous, with two tubercles; body brown. Fabricius. This is the cerambyx caudatus of Degeer; and leptura bajula of Scopoli.—Gmelin. Obs. a variety of this species (β) is described by Linnæus; the color of which is testaceous: thorax cinereous, and villous, with two little glabrous lines; in the Fabrician mantissa. Another variety (γ) is noticed, a native of Saxony, and only half the size of the former.

BAIZE', *n. s.* 'A kind of coarse open cloth stuff, having a long nap; sometimes frizzed on one side, and sometimes not frizzed. This stuff is without wale, being wrought on a loom with two treddles, like flannel.'—*Chambers.*

BAKE', *v. a.* & *n.*
Ba'ken, *part.*
Ba'ked, *adjec.*
Ba'ker, *n. s.*
Bake'house, *n. s.*

Bæcan, Sax. becken, Ger. supposed by Wachter to come from bec, which, in the Phrygian language, signified bread. Bread, and the process of preparing it, are very naturally identified, as the one always suggests the other. It signifies to heat or to harden by fire, and is of a more general application than to the staff of life; though the substantives have no other reference, unless they have an affix, sugar-baker, &c. To bake, is then to heat or to harden any thing in the fire, in a furnace, an oven, or in the sun; or to do the work of baking. *Baking* denotes the progress towards the completion of this work. *Baker* is the agent by whom it is accomplished. *Baked* describes the quality of these substances which have gone through the entire process, as baked meats, contra-distinguished from viands of a different description; and *bakehouse* is a place appropriated to the business of baking.

He will take thereof, and warm himself; yea, he kindleth it, and *baketh* bread. *Isaiah.*

There was a cake *baken* on the coals, and a cruse of water, at his head. 2 *Kings.*

He could roste and sethe, and broile and frie,
Maken mortrewes and wel *bake* a pie,
But gret harm was it as it thoughte me,
That on his shinne a mormal hadde he. *Chaucer.*

His brede, his ale, was alway after on,
A better envy'd man was no where non;
Withouten *baken* mete never was his house,
Of fish and flesh, and that so plenteous
It snewed in his hous of mete and drinke,
Of all the deinties that men coud of thinke. *Id.*

Loke of Egipt the king Dan Pharao,
His *baker* and his boteler also,—
Wheder they ne felten non effect in dremes. *Id.*

I keep his house, and I wash, wring, brew, *bake*, scour, dress meat, and make the beds, and do all myself. *Shakspeare.*

The sun with flaming arrows pierc'd the flood,
And, darting to the bottom, *bak'd* the mud. *Dryden.*

The work of the fire is a kind of *baking*; and whatsoever the fire *baketh*, time doth, in some degree, disso.ve. *Bacon.*

There be some houses wherein sweetmeats will relent, and *baked* meats will mould, more than others. *Id.*

With vehement suns
When dusty summer *bakes* the crumbling clods,
How pleasant is 't, beneath the twisted arch,
To ply the sweet carouse! *Philips.*

In life and health, every man must proceed upon trust, there being no knowing the intention of the cook or *baker*. *South.*

Baking, as a term of art, though applicable to the drying of any moist substance by heat, has been used more particularly to describe the art of preparing bread, or of reducing meal of any kind, whether simple or compound, into bread. We read, indeed, as in Chaucer, (Prologue v. 436) of 'bake mete, of fish, and flesh;' and some of our modern inventions in the way of cooking apparatus seem destined to extend the triumphs of this art, and to bake a whole Lord Mayor's dinner in less time than even his worshipful guests consume in eating it. But the 'baker,' historically and legally, has been the baker of bread. In an Anglo-Saxon colloquy, preserved in the Cotton Library (MS. Tib. A. 3.) and presenting a lively picture of the manners of our ancestors, a sort of dialogue occurs with the baker (bæcere):—'Of what use is your art? We can live long without you.' He replies, 'You may live through some space without my art, but not long, nor well. Without my craft every table would seem empty; and without bread (hlafe) all meat would seem nauseous.'

We have therefore only here to remark, generally, that the art of baking, of the highest antiquity, is, in regard to its origin, involved in entire obscurity: traces of it being found in the history of all ancient nations. Abraham and Lot, in the patriarchal ages, evinced their hospitality by providing baked cakes or unleavened bread for their guests; and shortly after (Exod. xii. 15.) the prohibition of leavened bread to the Israelites proves that the art of making it was well known and ordinarily practised. In Egypt it is highly probable the Jews became acquainted with this art: though the Chaldeans are said to have practised it as early as any people. The Greeks ascribe the invention of it to Pan, who Diodorus informs us, was originally an Egyptian deity, and that Thebes was built to his honor. (lib. i.) The Romans were long reproached as a pulse-eating people. Until 580 years after the founding of their metropolis it contained no professed bakers. They first settled in it, we are told by Pliny (Hist. Nat. xviii. 11), during the war with Perseus, king of Macedon: we find, however, before this time families baking their own bread.

Bakers, as we have seen, were esteemed important members of society by our ancestors. The incorporation of a London company with this title took place in the early part of the fourteenth century (1307), and by a statute 22 Hen. VIII. cap. 13., their trade was exempted from being reckoned as handicraft. Until a late act of parliament abolished their control of the price, called the assize of bread, this constituted an important portion of the duties of the London magistracy.

Under the word BREAD, we propose to treat of the entire manufacture of that important article: under COOKERY and DRESSING of MEATS, of the late inventions above alluded to; and under OVEN, of those which may be thus specifically classed.

BAKER (David Erskine), son of Henry Baker, was a young man of genius and learning. Having been adopted by an uncle, who was a silk throwster in Spitalfields, he succeeded him in the business; but wanted the prudence and attention necessary to secure prosperity in trade. Like his father, he was both a philosopher and a poet; and wrote several occasional poems, some of which were much admired at the time. His principal publication was, The Companion to the Play-house, in two volumes, 1764, 12mo; a work, which though imperfect, has considerable merit.

BAKER (Henry), an ingenious and diligent naturalist, was born in Fleet-street, London, about the end of the seventeenth, or beginning of the eighteenth century. He was brought up under an eminent bookseller, who preceded the elder Dodsley, but being of a philosophical turn, and having studied the methods practicable in the cure of deaf and dumb persons, he made this the employment of his life. In the prosecution of so valuable and difficult an undertaking he was very successful. He married Sophia, youngest daughter of the famous Daniel Defoe, who brought him two sons, both of whom he survived. In January, 1740, he was elected a fellow of the Society of Antiquaries; and, on the twelfth of March following, the same honor was conferred upon him by the Royal Society. In 1744 Sir Godfrey Copley's gold medal was bestowed upon him, for discoveries in the chrystallisation and configurations of saline particles. Having led a very useful and honorable life, he died in the Strand in 1774, aged above seventy. Mr. Baker was a very constant and useful attendant at the meetings of the Royal and Antiquarian Societies, and in both was frequently chosen of the council. Several of his communications are printed in the Philosophical Transactions; and he was the means, by his extensive correspondence, of conveying to the Society the intelligence and observations of many other inquisitive and philosophical men, at home and abroad. The society for the encouragement of arts, manufactures, and commerce, is under singular obligations to him. Being one of its earliest members, he contributed greatly to its rise and establishment, and at its first institution officiated for some time gratis as secretary. He drew up a short account of its origin, which was read before the society of antiquaries. Mr. Baker was a poetical writer in the early part of his life. His Invocation of Health was printed without his knowledge; but reprinted by himself in his Original Poems, serious and humorous, part I. 8vo. 1725. Part II. came out in 1726. Among these poems are some tales as witty, and as loose as Prior's. He was the author likewise of the Universe, a poem, which has been several times reprinted. His account of the water polype, originally published in the Philosophical Transactions, was afterwards enlarged into a separate treatise, and has gone through several editions. But his principal publications are, The Microscope made Easy, and Employment for the Microscope.

BAKER (Sir Richard), author of the Chronicle of the Kings of England, was born at Sissingherst, in Kent, about the year 1568. After completing his studies at Oxford, he travelled, and upon his return was created A. M. In 1603 he was knighted by king James I. and in 1620, high sheriff of Oxfordshire; but engaging to pay some of the debts of his wife's family, he was reduced to poverty, and obliged to retire for shelter to the Fleet prison. His works are, 1. Meditations and Disquisitions on the Lord's Prayer. 2. Meditations, &c. on several Psalms. 3. Meditations and Prayers upon the Seven Days of the Week. 4. Cato Variegatus, or Cato's Moral Distiches varied, &c.—Mr. Granger observes. 'That his Chronicle of the Kings of England was more esteemed by readers of the lower class, than by such as had a critical knowledge of history. The language of it was called polite: and it long maintained its reputation, especially among country gentlemen. The author seems to have been sometimes more studious to please than to inform, and with that view to have sacrificed even chronology itself to method.' In 1658 Edward Philips, nephew to Milton, published a third edition of this work, with the addition of the reign of Charles I. It has been several times reprinted, and is now carried as low as the reign of George I. Sir Richard also translated several works from the French and Italian. He died in the Fleet, very poor, in 1645.

BAKER (Thomas), an eminent mathematician, was born at Ilton, in Somersetshire, about 1625, and entered at Wadham College, Oxon, 1640; after which he was vicar of Bishop's Nymmet, in Devonshire, where he wrote The Geometrical Key, or the Gate of Equations unlocked, by which he gained a considerable reputation. A little before his death, the members of the Royal Society sent him some mathematical queries, to which he returned such satisfactory answers, that they presented him a medal. He died at Bishop's Nymmet, in 1690.

BAKER (Thomas), a very ingenious and learned antiquary, descended from an ancient family, was born at Crook, in 1656; educated at the free school at Durham, and thence removed to Cambridge in 1674. He proceeded B. A. in 1677; M. A. 1681; was elected fellow, March, 1679-80: ordained deacon by Bishop Compton, Dec. 20th, 1685, and priest by Bishop Barlow, Dec. 19th, 1686. Being chaplain to Lord Crew, bishop of Durham, his Lordship collated him to the rectory of Long-Newton, June, 1687; and intended to have given him that of Sedgefield, worth about £700 a year, with a golden prebend, had he not incurred his displeasure for refusing to read King James II.'s declaration for liberty of conscience. Mr. Baker resigned Long-Newton, August 1st. 1690, refusing to take the oaths; and retired to his fellowship at St. John's, in which he was protected till Jan. 20th, 1716-17, when he was dispossessed of it, in consequence of scrupling to take the oaths required on the accession of George I. but he retained his chambers at St. John's college, where he was highly esteemed, and Mr.

Prior, the celebrated poet, gave the profits of his own fellowship to Baker, in order to supply the loss of income which he had suffered. He is said to have retained a lively resentment of his deprivations; and designated himself in his books, as well as in those which he gave to the college library, socius ejectus, and in some, ejectus rector. He continued to reside in the college as commoner master till his death, July 2d, 1740. Mr. Baker's correspondence with men of learning was extensive; and he was liberal in his literary communications to those who solicited information; particularly to bishop Burnet, who was indebted to him for several remarks and corrections relating to his History of the Reformation. Of his extensive collections, he left twenty-three volumes in folio, written by his own hand, to Lord Oxford, and they now compose part of the Harleian collection in the British museum. He also bequeathed fifteen volumes folio, of a like kind, to the public library at Cambridge, together with other MSS. and printed books. Biog. Brit. 'Mr. Baker,' says the Earl of Orford, was 'perhaps the sole instance of a man who bequeathed his worldly goods to a society that ejected him, and to the ministers of a church in which he had lost preferment.' The only works he printed were, 1. Reflections on Learning, showing the insufficiency thereof in its several particulars, in order to evince the usefulness and necessity of Revelation, Lond. 1709-10; and 2. The Preface to bishop Fisher's funeral sermon for Margaret, Countess of Richmond and Derby, 1708; both without his name. Dr. Knight styles him 'the greatest master of the antiquities of this our university;' and Hearne pays him a similar compliment; expressing his wish that his collections were published. Mr. Baker intended something like an Athenæ Cantabrigienses, on the plan of the Athenæ Oxonienses

Baker (Sir George), M. D. was the son of a Devonshire clergyman, born in 1722, and educated at Eton and Cambridge. He commenced practice at Stamford, whence he soon removed to London, and soon attained considerable reputation, being appointed physician in ordinary to the king, and physician to the queen: he was also chosen fellow of the Royal and Antiquarian Societies. In 1776 he was created a baronet, and in 1797 was placed at the head of his profession, being elected president of the College of Physicians. He died June 15th, 1809. Sir George Baker had the reputation of being an elegant classical scholar and critic. His published works are, An Essay on the Cause of the Endemical Colic of Devonshire, (about 1767), which gave rise to a controversy relative to the origin of that malady, which he attributed to the use of cyder, much impregnated with lead. Preface to a late edition of the Pharmacopœia of the Medical College, with numerous Essays in the Medical and Philosophical Journals of his time.

BAKERS' Company; there are two companies of this name, the White and the Brown Bakers. The White Bakers are of great antiquity, having been a company as early as Edward II. Their arms are (fig. 1.) '*gules*, three garbs, *or* on a chief; an arm issuing out of a cloud, *proper*, holding a pair of scales, *or*, between three garbs of the first.'

Fig. 1.

Fig. 2.

The Brown Bakers were incorporated the 19th of James I. Their arms (fig. 2) are '*gules*, a hand issuing out of the clouds, *proper*, holding a pair of scales; an anchor in a chief, barry wavy, *or* and *azure*, on a chevron, *gules* between three garbes.

BAKEWELL (Robert), a famous grazier, born in 1726, on his father's estate of Dishley, in Leicestershire. For some years before his father's death, he had the management of the farm, and his attention was much taken up in improving the breed of his cattle. In pursuit of this object, he travelled over England into Ireland and Holland; and such was his success, that in a short time the Dishley sheep were prized so much above others, that he could let one of his rams for no less than 400 guineas! and for one in particular, he drew the enormous sum of 800 guineas, besides the ewes from his own stock, which, by the same calculation, makes a total of 1200 guineas! Dishley sheep are distinguished by the fineness of their bone and flesh, the lightness of the offal, and quiet disposition, which makes them fatten with less food than other sheep equally heavy. Mr. Bakewell also greatly improved his black cattle; and could let his bulls at fifty guineas a season each. He died in 1795. On the other hand, it has been stated that he failed in business more than once; and, with regard to the effect of his improvements, it has been sarcastically remarked, that they enabled him to make meat too fat for any body to eat, and too dear for any body to purchase.

Bakewell, a market town and parish in the hundred of High-Peak, Derby, eleven miles west from Chesterfield, and 152 north from London. It is seated on the river Wye, and contains 1700 inhabitants. It is supposed to have been a Roman town. The place is much resorted to by anglers; the Wye producing plenty of trout, grayling, &c. There are several good quarries of stone, and lead and zinc mines, in the neighbourhood; here is also a large cotton manufactory. Three miles distant is Chatsworth, a magnificent seat of the duke of Devonshire. The celebrated mansion was erected by William the first duke of Devonshire, in the year 1702. The unfortunate Mary, queen of Scots, was doomed to thirteen years' captivity in the old mansion at this place. On the east side, not far distant from the town, is a high mountain, on the top of which millstones are dug. The living of Bakewell is in the gift of the dean and chapter of Lichfield; and the parish is exempt from episcopal jurisdiction. Market on Monday. Its fairs are on Easter Monday, Whit Monday, the Monday

after October 10th, and the Monday after November 22d. At a short distance from Bakewell is Ashford, where are some marble works that were the first of the kind established in England. Great quantities of black and gray marble are sawed and polished by means of machinery kept in motion by water. About two miles south of Bakewell is Haddon Hall, a truly venerable mansion, belonging to his grace the duke of Rutland. The high turrets and embattlements of this house, when beheld at some distance, give it the appearance of an ancient fortified castle. It presents, perhaps, a more complete specimen of the ancient English baronial mansion than is to be found in any other house in the kingdom. For a particular description of it see the *Beauties of England and Wales* vol. iii. p. 494.

BAKHISHISARAI, or simply Bacca-Serai, 'the summer-house,' a large town of European Russia, in the Crimea, government of Taurida, formerly the residence of the khans, situated between two hills, and containing from 10,000 to 12,000 inhabitants. Here are manufactures of Turkey leather, saddles, silk stuffs, and cutlery. Fifty miles north of Caffa. Long. 33° 52′ E., lat. 45° 10′ N.

BAKOONGAR, one of the Sooloo islands. It is high and rocky, and has some inhabitants.

BAKOS, a river of Great Bukharia, from which and others the Harrat is formed.

BAKOU, or Baku, a town of Persia, in the province of Shirvan, situated at the extremity of the Gulf of Ghilan, occupying the peninsula of Abasharon, on the west coast of the Caspian. It is esteemed the most commodious haven in that sea, as vessels may ride securely at anchor in seven fathoms of water, within eighty yards of the shore; but the number of shoals, islands, and sand banks, render the entrance, in some places, difficult and dangerous. The town is of an obtuse triangular form; it occupies a strong and fine situation, and is defended by a strong wall and deep ditch. Good cotton is yielded in the neighbourhood, together with opium, rice, silk, wine, salt, and naptha. In the latter article is the principal trade of Bakou, 1000 or 1500 pounds of it being yielded by the wells in this district daily. The country around is highly volcanic, abounding with inflammable gases, which, being collected in leather flasks, will ignite at a distance. Hence, the town and its environs abound in monuments of the superstition of the Guebres, Parsees, and other fire worshippers, some of whom yet frequent a spot called Ateschjah. Various temples built of stone appear; in one of which a blue lambent flame issued from a large hollow cane near the altar. The jurisdiction of Baku extends over thirty-two villages. It was ceded to Russia in the year 1723, and restored to Persia in 1735; but retaken by the Russians in 1801, who have ever since kept possession of it.

BAKTEGAN, or Bakteghian, a salt lake in the province of Fars, Persia, about seventy-five miles in circuit. It is nearly dry in summer, when a quantity of fine salt, left by evaporation, is collected from the bottom. Distant ten miles south-east of Shiraz.

BAKTSCHISARI, an open town on the west side of the Crimea, near the sea, seated between two mountains. It is one of the places of residence of the cham of Tartary.

BAKU. See Bakou.

BAL, a Gaelic word, used in the composition of the names of many places, particularly in Scotland and Ireland, and signifying a town, village, or place of residence.

BALA, a market town of Merionethshire, in North Wales, and a borough by prescription, but sending no member to parliament. It is 202 miles north-west of London, and 26 from Welshpool. Population 1163. The assizes for the county are held here alternately with Dolgelly. There are vestiges of three Roman camps in the neighbourhood, and adjacent to the town is a large artificial mount, called Tommen y Bala, supposed to be of Roman origin. Its manufactures are woollen gloves, stockings, and the caps called Welsh wigs.

Pemble Mere, Llyn Tegid, or Bala lake, lies a few miles to the south of the town, and is the largest sheet of water in Wales, being four miles in length, and about three quarters of a mile in breadth. Its depth of water is about forty feet; but it sometimes rises above its usual level, overflowing the beautiful vale of Eidernion. It abounds in fish, and the tradition of the country states that the rive Dee, like the Rhone at Geneva, passes through without mixing its waters with those of the lake.

BALAAM; from בלי, without, and עם, people; the son of Beor, a prophet and diviner of Pethor, upon the Euphrates, whose practices with Balak, king of the Moabites, are recorded in Numbers xxii.—xxiv. as well as his involuntary prophecies of the prosperity of Israel. Jewish writers are generally of opinion that he was a pretending astrologer, who observing when men were under a bad aspect of the stars, pronounced a curse upon them; which sometimes coming to pass, gained him reputation. Several ancient fathers suppose him to have been a common soothsayer, who undertook to tell future events, and discover secrets, by no very justifiable arts. Origen will have it, that he was one of the devil's sorcerers, and that of him he went to enquire; but that God prevented him, and put what answers he pleased into his mouth. It cannot be denied, however, that the Scriptures expressly call him a prophet, 2 Pet. ii. 16, and therefore some later writers have imagined that he had once been a good man, till loving the wages of iniquity, and prostituting the honour of his office to covetousness, he apostatised from God, and devoted himself to idolatrous practices. Philo, in his Life of Moses, passes over the miracle of his ass speaking to the prophet in silence; and Maimonides pretends that it happened to Balaam in a prophetic vision only. St. Peter, however, assuredly speaks of the fact as literal and certain. We must own, says Calmet, that this is a miraculous fact related by an inspired writer, whose authority we ought not to call in question in the least particular; but we should study such ways of explaining it as are most conformable to reason, and most proper to solve the difficulties of it, without attacking the truth of the history. The miracle, says

bishop Newton, was not unnecessary. 'It evidenced, that the same divine power, which caused the ass to speak, compelled Balaam to utter blessings contrary to his inclination. And accordingly he was overruled to bless the people, though he came prepared and disposed to curse them; which, according to Bochart, was the greater miracle of the two, for the ass was merely passive, but Balaam resisted the good motions of God.'

BALAAMITES, a sect in the first ages of Christianity, of the same import in the Hebrew language with Nicolaitans in the Greek.

BALABAC, an island of the eastern seas, off the south extremity of Palawan. Long. 117° 10′ E., lat. 8° N.

BALABEA, an island of the South Pacific Ocean, off New Caledonia. Long. 164° 22′ E., lat. 20° 7′ S.

BALABOLA, one of the Society Islands in the South Sea, visited by Captain Cook. It is only eight leagues in circumference, but has a very capacious harbour on the west side.

BALACHNA, or Balakhan, a town of European Russia, in the government of Nishnei-Novgorod, on the right bank of the Wolga. The salt springs here were closed in 1755. The inhabitants, engaged partly in agriculture and partly in trade, amount to 5000. It is eighteen miles W. N. W. of Nishnei-Novgorod, and 120 E. S. E. of Petersburg.

BALADAN, the scripture name for a king of Babylon, Isa. xxxix. 1. 2 Kings xx. 12, called by profane authors Belesus or Belesis, Nabonassar or Nanybrus. He at first was no more than governor of Babylon; but entering into a confederacy with Arbaces, governor of Media, and rebelling against Sardanapalus, king of Assyria, these two generals marched against him with an army of 400,000 men, and were beat in three different battles. But the Bactrians deserting the king, and coming over to Baladan and Arbaces, the rebels attacked the enemy in the night, and made themselves masters of his camp. After this misfortune, Sardanapalus retreated to Nineveh, and left the command of his army to his brother-in-law Salamenes. The conspirators attacked Salamenes, and defeated him in two great battles; after which they laid siege to Nineveh. Sardanapalus sustained the siege for three years; but the Tigris, in the third year, overflowing its banks, beat down twenty furlongs of the walls: whereupon the conspirators entered the city and took possession of it, after Sardanapalus had burnt himself and all his most valuable effects upon a funeral pile, erected for that purpose in his palace. Baladan was thereupon acknowledged king of Babylon, as Arbaces was of Media. Sir Isaac Newton supposes Baladan to have been the son of Pul, king of Assyria, and to have had Babylon for his portion.

BALÆNA, the whale, in zoology, from *βαλλω*, to cast up, because it throws up water, a genus of the mammalia class, belonging to the order of cete. The characters of this genus are, the balæna, in place of teeth, has a horny plate on the upper jaw, and a double fistula or pipe for throwing out water. There are five principal species; viz. 1. B. bo-ops, the pike-headed whale, has a double pipe in its snout, three fins and a hard horny ridge on its back. The belly is full of longitudinal folds or rugæ. It frequents the northern ocean. The length of that taken on the coast of Scotland, as remarked by Sir Robert Sibbald, was forty-six feet, and its greatest circumference twenty. This species takes its name from the shape of its nose, which is narrower and sharper pointed than that of other whales. 2. B. Musculus, has a double pipe in its front, and three fins; the under jaw is much wider than the upper one. It frequents the Scotch coast, and feeds upon herrings. 3. B. mysticetus, the common whale, which has many turnings and windings in its nostrils, and no fin on the back. This is the largest of all animals; it is commonly found of from fifty to sixty feet; but some have been taken in modern times, in the northern seas ninety feet in length. But as Mr. Scoresby observes, 'there is every probability of an error having been committed two or three centuries back (from which period some of our dimensions have been derived), when we know that whales were usually viewed with superstitious dread, and their magnitude and powers in consequence highly exaggerated. Of 322 individuals, in the capture of which I have been personally concerned, no one, I believe, exceeded sixty feet in length, and the largest I ever measured was fifty-eight feet from one extremity to the other, being one of the longest to appearance I ever saw. From fifty to sixty feet therefore may be considered the average length of the Greenland whale.' The head is very much disproportioned to the size of the body, being one third of the size of the fish, and the under lip is much broader than the upper. The tongue is composed of a very soft spongy fat, capable of yielding five or six barrels of oil. The gullet is very small, not exceeding four inches in width. In the middle of the head are two orifices through which it spouts water to a vast height, and with a great noise, especially when disturbed or wounded. The eyes are not larger than those of an ox, and when the chrystalline humor is dried, it does not appear larger than a pea. They are placed towards the back of the head, being the most convenient situation for enabling them to see both before and behind; as also to see over them, where their food is principally found. They are guarded by eye-lids and eye-lashes, as in quadrupeds; and they seem to be very sharp sighted. Nor is their sense of hearing in less perfection; for they are warned at a great distance of any danger preparing against them. It would seem as if nature had designedly given them these advantages, as they multiply little, in order to continue their kind. It is true, indeed, that the external organ of hearing is scarcely perceptible, for this might only embarrass them in their natural element; but as soon as the thin scarf-skin after mentioned is removed, a black spot is discovered behind the eye, and under that is the auditory canal, that leads to a regular apparatus for hearing. In short, the animal hears the smallest sounds at very great distances, and at all times, except when it is spouting water; which is the time that the fishers approach to strike it.

What is known by the name of whalebone, adheres to the upper jaw of the whale; and is formed of thin parallel laminæ, some of the longest four yards in length; of these there are commonly 350 on each side, but in very old fish more; about 500 of them are of a length fit for use, the others being too short. They are surrounded with long strong hair, not only that they may not hurt the tongue, but as strainers to prevent the return of their food when they discharge the water out of their mouths. The real bones of the whale are hard, porous, and full of marrow. Two great strong bones sustain the upper lip, lying against each other in the shape of an half moon. The tail is broad and semilunar; and when the fish lies on one side, its blow is tremendous. The tail alone it makes use of, to advance itself forward in the water; and it is surprising to see with what force and celerity its enormous bulk cuts through the ocean. The tail occupies a surface of eighty or 100 square feet, it is only five or six feet long, but from eighteen to twenty-four or twenty-six feet in breadth, and is placed horizontally: its motions are rapid and universal. The fins are only made use of for turning in the water, and giving a direction to the velocity impressed by the tail: they are from seven to nine feet long, and four to five broad, being capable of motion in any direction; but they are prevented from being raised above the horizontal position by the tension of the skin and flesh below; the account therefore of whales supporting their young on their back by means of their fins, must be fabulous. The whale varies in color; the back of some being red, the belly generally white. Others are black, some mottled, others quite white. Their colors in the water are extremely beautiful, and their skin is very smooth and slippery. The outward or scarf skin of the whale is no thicker than parchment; but this removed, the real skin appears, of about an inch thick, and covering the fat or blubber that lies beneath: this is from eight to twelve inches in thickness; and is, when the fish is in health, of a beautiful yellow. The muscles lie beneath; and these, like the flesh of quadrupeds, are very red and tough. The teats in the female are in the lower part of the belly. The fidelity of the male and female to each other exceeds whatever we are told even of the constancy of birds. Some fishers, Anderson informs us, having struck one of two whales, a male and a female, that were in company together, the wounded fish made a long and terrible resistance: it struck down a boat with three men in it, with a single blow of its tail, by which all went to the bottom. The other still attended its companion, and lent it every assistance; till, at last, the fish that was struck, sunk under the number of its wounds; while its faithful associate, disdaining to survive the loss, with great bellowing, stretched itself upon the dead fish, and shared his fate. The whale goes with young nine or ten months, and generally produces one young one, and never above two. When she suckles her young, she throws herself on one side on the surface of the sea, and the young one attaches itself to the teat. Nothing can exceed the tenderness of the female for her offspring; she carries it with her where ever she goes, and when hardest pursued, even when wounded, she still clasps her young one; and when she plunges to avoid danger, takes it to the bottom; but rises sooner than usual, to give it breath again. In June 1811, says Mr. Scoresby, one of my harpooners struck a sucker, with the hope that it would lead to the capture of the mother. Presently she arose close by the 'fast boat,' and seizing the young one, dragged about a hundred fathoms of line out of the boat with remarkable force and velocity. Again she arose to the surface; darted furiously to and fro; frequently stopped short, or suddenly changed her direction, and gave every possible intimation of extreme agony. For a length of time she continued thus to act, though closely pursued by the boats; and, inspired with courage and resolution by her concern for her offspring, seemed regardless of the danger which surrounded her. At length, one of the boats approached so near, that a harpoon was hove at her. It hit, but did not attach itself. A second harpoon was struck; this also failed to penetrate; but a third was more effectual, and held. Still she did not attempt to escape, but allowed other boats to approach; so that in a few minutes three more harpoons were fastened; and in the course of an hour afterwards she was killed. The young ones continue at the breast for a year; during which time, they are called by the sailors, shortheads. They are then extremely fat, and yield above fifty barrels of blubber. The mother at the same time is equally lean and emaciated. At the age of two years they are called stunts, as they do not thrive much immediately upon quitting the breast: they then yield scarcely above twenty or twenty-four barrels of blubber: after this they are called skull-fish, and their age is wholly unknown. 4. B. physalus, or fin-fish, is distinguished from the common whale by a fin on the back, placed very low and near the tail. The length is greater than that of the common kind, being often 100 feet; but much more slender. It is furnished with whalebone in the upper jaw, mixed with hairs, but short and knotty, and of little value. The blubber also on the body of this kind is very inconsiderable. These circumstances, added to its extreme fierceness and agility, which render the capture very dangerous, cause the fishers to neglect it. The natives of Greenland, however, hold it in great esteem, as it affords a great quantity of flesh, which to their palate is very agreeable. The lips are brown, and like a twisted rope: the spout hole is as it were split in the top of its head, through which it blows water with much more violence, and to a greater height, than the common whale. The fishers are not very fond of seeing it, for on its appearance the others retire out of those seas. Some writers conjecture this species to have been the φυσαλος, and physeter, or blowing whale of Oppian, Ælian, and Pliny: but, since those writers have not left the least description of it, it is impossible to judge which kind they meant; for in respect to the faculty of spouting out water, or blowing, it is not peculiar to any one species, but common to all the whale kind. The physalus inhabits the

European and American Oceans: it feeds upon herrings and other fish. 5. B. rostrata, beaked whale: rostrata mysticete. The nose of this species is elongated to a beak, and the dorsal fin fat. It inhabits the Norway seas, is rarely seen near England, is very black, much resembling the boops, swims rapidly, and is about twenty-five feet long.

Each species of whale propagates only its own kind, and does not at all mingle with the rest: however, they are generally seen in shoals, of different kinds together, and make their migrations in large companies. They are gregarious animals; which implies their want of mutual defence against the invasions of smaller but more powerful fishes. It seems astonishing, therefore, how a shoal of these enormous animals find subsistence together. To increase our wonder, we not only see them herding together, but usually find them fatter than any other animals of whatsoever element. We likewise know that they cannot swallow large fishes, as their throats are so narrow that an animal larger than a herring could not enter. How then do they subsist, and grow so fat? A certain sort of small snail, or, as Linnæus tells us, the medusa, or sea-blubber, is sufficient for this supply. (See Medusa.) They float in vast abundance in the northern seas. Content with this simple food, it pursues no other animal, leads an inoffensive life in its element, and is harmless in proportion to its strength to do mischief. But Martens says he has found a barrel or more of herrings at a time in the belly of the whale. Inoffensive in itself, however, it has many enemies ready to take advantage of its disposition, and of its unfitness for combat. There is a small animal of the shell-fish kind, called the whale-louse, that sticks to its body as we see shells sticking to the foul bottom of a ship. This insinuates itself chiefly under the fins; and whatever efforts the great animal makes, it still keeps its hold, and lives upon the fat, which it is provided with instruments to arrive at. The sword-fish, however, is the whale's most terrible enemy. See Xiphias. 'At the sight of this little animal,' says Anderson, 'the whale seems agitated in an extraordinary manner; leaping from the water as if with affright: wherever it appears, the whale perceives it at a distance, and flees from it in the opposite direction. I have been myself,' continues he, 'a spectator of their terrible encounter. The whale has no instrument of defence except the tail; with that it endeavours to strike the enemy; and a single blow taking place would effectually destroy its adversary; but the sword-fish is as active as the other is strong, and easily avoids the stroke; then bounding into the air, it falls upon its great subjacent enemy, and endeavours, not to pierce it with its pointed beak, but to cut it with its toothed edges. The sea all about is seen dyed with blood, proceeding from the wounds of the whale; while the enormous animal vainly endeavours to reach its invader, and strikes with its tail against the surface of the water, making a report at each blow louder than the noise of a cannon.' In calm weather, the fishermen lie upon their oars as spectators of this scene, until they perceive the whale at an extremity: then they row towards him; and his enemy retiring at their approach, they enjoy the fruits of the victory. Seamen report, that a fish called the thresher, a species of squalus, is in league with the sword-fish; and that the former keeps on the back of the whale, while the latter wounds it underneath in the belly. The grampus, and other large fishes of the cetaceous order, are attacked and destroyed by the same enemies in a similar manner. The whale has other desperate enemies in sharks of different sizes, from one to three fathoms; and it generally avoids the seas where sharks abound. But among all the enemies of this harmless animal, man may be ranked as the greatest.

Viewing the whale in a commercial light, we must observe, that the English were late before they engaged in this fishery. It appears by a set of queries, proposed by a merchant, in 1575, in order to get information in the business, that we were at that time totally ignorant of it, being obliged to send to 'Biskaie for men skilful in the catching of the whale and ordering of the oil, and one cooper skilful to set up the staved cask.' This seems strange: for by the account Octher gives of his travels, to king Alfred, near 700 years before that period, it is evident that he made that monarch acquainted with the Norwegians practising the whale fishery; it seems therefore that all memory of that gainful employment, as well as of the able voyager Octher and his important discoveries, was lost for nearly seven centuries. The earliest notice we find of this article in our commerce is by Hackluyt, who says it was brought from the Bay of St. Laurence by an English ship that 'went there for the barbes and fynnes of whales and train oil, A. D. 1594, and found there 700 or 800 whale fynnes, part of the cargo of two great Biskaine ships, that had been wrecked three years before.' About 1598, the town of Hull had the honor of first seriously attempting this profitable branch of trade; which has largely contributed to its aggrandizement.

We will resume the history and description of it, however, under Fisheries, which see. Linnæus makes the physeter and delphinus, which are ranked among the whales by some writers, two distinct genera. See Physeter and Delphinus.

BALAGHAR, a district of Persia, in the principality of Baku, including some villages, near which are twenty-five wells of black naphtha. There is also one of a very inflammable white naphtha: this remains lighted on the surface of water; whence it is a common amusement among the inhabitants to throw pieces of it, during calms, into the sea. It is subject to Russia.

BALAGHAUT, or Balagate, the upper passes of a chain of mountains which divides the coast of Malabar from that of Coromandel, running almost the whole length of the peninsula on this side the Ganges. Some parts of them are covered with fine red earth, which is blown by the strong west winds as far as Ceylon; and when the rays of the sun are reflected from these mountains, they seem to be on fire. They make surprising alterations in the seasons; for on the north side of the cape Comorin, it is winter in May, June, July, August, and September, in which months it is summer on the south side: on one side there are continual tempests, thunder

and lightning, while the other enjoys a constant serenity. When black clouds are gathered about the mountains, they are followed by sudden rain, which causes the overflowing of the rivers, and chokes them up with sand, insomuch that they are unnavigable for some time afterwards. The buildings and clothes of the inhabitants of this region are scarcely sufficient to defend them from the weather. They live upon rice, milk, roots, and herbs, with very little meat; they have likewise a sort of small arrac, but they are not given to drunkenness. These mountains are also called the Ghauts.

BALAGUER, a town of Spain, in Catalonia, situated on the Segre, at the foot of a steep hill, in a tract of uncommon fertility. It contains four convents, a castle, and 3700 inhabitants. The neighbourhood is very fertile. In 1709 Balaguer was taken by Stahremberg, for Charles III. and in 1710 by the duke de Vendome, for Philip V. It is the capital of a district, and lies sixty-three miles north-west of Barcelona, and 219 north-east of Madrid. Long. 0° 40′ E., lat. 41° 55′ N.

BALAK; בלק, Heb. i. e. a destroyer; the son of Zippor, a king of the Moabites, who, alarmed at the success of the Israelites, and jealous of their prosperity, sent for Balaam, and bribed him to curse them. Num. xxiii. and xxiv. The divinations of Balaam, however, and the still more powerful enchantments of the fair Moabitesses, appear to have been the only weapons employed by Balak against the prosperity of Israel; for we find Jephthah urges it as an argument, in his manifesto against the king of the Ammonites (Judges xi. 25.), that Balak never actually fought against them.

BALAKLMA, or BALACHRA, a town of Russia, in the province of Nizney Novgorod, on the Volga, twenty miles north of the city of Nizney Novgorod. Long. 44° 0′ E., lat. 56° 30′ N.

BALALUAN, a volcano in the island of Sumatra, situated in the northern part of the island, near Acheen.

BALAMATTA, a town on the east coast of the island of Bouro. Long. 126° 17′ E., lat. 3° 12′ S.

BALAMBANGAN, a fertile island in the Eastern seas, between Borneo and Magindanao. It is about fourteen miles in length from south-east to north-west, and three to six in breadth, and has two harbours. Being ceded by the king of Sooloo to the English East India Company, a settlement was established upon it in 1773; but the Sooloo surprised it in 1775, and seized the effects of the company, to the value of above £200,000 sterling. A new establishment was formed in 1803, which proving expensive, was withdrawn. Previous to 1774 it was nearly uninhabited. Distant fifteen miles from the northern extremity of Borneo. Long 117° 5′ E., lat. 7° 15′ N.

BALAMBUAN, or BALLANBOUANG, or PALAMBUAN, a district and town in the south-east of the island of Java, along the shore of the straits of Bally; formerly governed by an independent sovereign. A range of mountains, intersecting the island longitudinally, commences here. Considerable trade in pepper was once carried on here; but the European resident having removed to Bagnouangay, it has been transferred thither. The town stands on a river of the same name, and is protected by a fort.

BALAMBUAN, or PALAMBUAN, a strong trading town of Asia, in the East Indies, on the east end of the island of Java, and capital of a territory of the same name.

BALAMIO (Ferdinand), of Sicily, was physician to pope Leo X. who greatly regarded him. He was no less skilled in the belles lettres than in medicine; and he cultivated poetry and the Greek learning with much success. He translated from the Greek into Latin several pieces of Galen, which were first printed separately, and afterwards inserted in the works of that ancient physician, published at Venice, 1586, in folio. He flourished at Rome about the year 1555.

BALAM-PULLI, in botany, a name used by some authors for the tree whose fruit is the tamarind of the shops.

BAL'ANCE, *n. s. v. a.* & *n.* } Fr. *balance*;
BAL'ANCING, } Lat. *bis lanx*? One
BAL'ANCER. } of the six simple

powers in mechanics, used principally for determining the difference of weight in heavy bodies; and consequently their masses or quantities of matter. For further definition and description, see CLOCK-MAKING and MECHANICS. The metaphorical applications of the different parts of this word are various. To balance in the mind is to compare one thing with another. The act of comparing two things together is called a balance; it also is used to signify fluctuation between equal motives: as applied to accounts, it means that which is wanting to make two parts even, and the payment of what is deficient, to produce equality in the debtor and creditor statements. In general to keep in a state of just proportion, in equilibrio. Balance of trade is the equal importing of foreign commodities with the exporting of the native. Balance of power is the exact equipoise of strength and resources between rival nations, formed by alliances and treaties with neighbouring states, in order to keep each other in check, to preserve peace, and to promote the advantage of all. In astronomy, the balances are one of the twelve signs of the zodiac, commonly called Libra.

Ten thousend mark and mo, that now er in *balance*,
And I betraised of alle, bi God, that all may auance,
I salle bring him to stalle, but he make acquitance.
R. Brunne, p, 156.

If the *balance* of our lives had not one scale of reason to poise another of sensuality, the blood and baseness of our nature would conduct us to most preposterous conclusions. *Shakspeare.*

I have in equal *balance* justly weigh'd
What wrong our arms may do, what wrongs we suffer:
Griefs heavier than our offences. *Id. Henry VI.*

Comfort arises not from others being miserable, but from this inference upon the *balance*, that we suffer only the lot of nature. *L'Estrange.*

Upon a fair *balance* of the advantages on either side, it will appear, that the rules of the gospel are more powerful means of conviction than such message. *Atterbury.*

Since there is nothing that can offend, I see not why you should *balance* a moment about printing it. *Id. to Pope.*

Little that is truly noble can be expected from one who is ever poring on his cash book, or *balancing* his accounts. *Spectator.*

Though I am very well satisfied, that it is not in my power to *balance* accounts with my Maker, I am resolved, however, to turn all my endeavours that way. *Addison. Id.*

They pass the planets sev'n, and pass the fix'd
And that crystalline sphere whose *balance* weighs
The trepidation talk'd, and that first mov'd. *Milton.*

Were the satisfaction of lust, and the joys of heaven, offered to any one's present possession, he would not *balance*, or err, in the determination of his choice. *Locke.*

Judging is *balancing* an account, and determining on which side the odds lie. *Id.*

Care being taken, that the exportation exceed in value the importation; and then the *balance* of trade must of necessity be returned in coin or bullion. *Bacon's Advice to Villiers.*

Heav'n that hath plac'd this island to give law,
To *balance* Europe, and her states to awe. *Waller*

A balance of power, either without or within a state, is best conceived by considering what the nature of a *balance* is. It supposes three things; first, the part which is held, together with the hand that holds it; and then the two scales, with whatever is weighed therein. *Swift.*

Give him leave
To *balance* the account of Blenheim's day. *Prior.*

BALANCE, THE ANCIENT OR ROMAN, called also the Statera Romana, or steel-yard, consists, as is well known, of a lever or beam, moveable on a centre, and suspended near one of its extremities: the bodies to be weighed are applied on one side of the centre; and their weight is shown by the division marked on the beam, where the weight, which is moveable along the lever, keeps the steel-yard in equilibrio. This balance is still often used in weighing heavy bodies.

BALANCE, DECEITFUL, or that which cheats by the inequality of its brachia, is founded on the same principle as the steel-yard. Let there be, for example, a balance so constructed, that both the brachia with their scales shall equiponderate, but that the length of the one arm shall be to that of the other as ten to nine. In this case a weight of nine pounds put into the scale of the longest arm, will counterpoise one of ten pounds put into that of the shorter one: but the cheat is immediately discovered by shifting the weight from one scale to the other: in which case, the balance will no longer remain in equilibrio. The true weight is a geometrical mean proportion between the two false weights.

BALANCE, ASSAY, is a very nice balance used in decimastical operations, to determine exactly the weight of minute bodies; see plate BALANCE, fig. 1. This should be made of the best steel, and of the hardest kind; because that metal is not so easily spoiled with rust as iron; and it is more apt than any other to take a perfect polish, which at the same time prevents the rust. The structure of the assayer's scale is little different from that of common scales, excepting in nicety and smallness. The longer the beam of it is, the more exactly may the weight of a body be found; however, ten or twelve inches are a sufficient length. Let the thickness of it be so little, that two drams may hardly be hung at either of its extremities without its bending; for the largest weight put upon it seldom exceeds one dram. The whole surface of this beam must be altogether without ornaments, which only increase the weight and gather dust, &c. We give in the plate, one made by Fontin of Paris, so delicate, that when charged with a weight of a thousand grammes in each scale, it will turn with the addition of one gramme. LL′ is the beam of the balance, made of the finest steel, and of sufficient dimensions to prevent any sensible deflection in it, with the greatest weights it is proposed to charge it with; the arms are of course of equal length and figure, and the whole is balanced on a knife-edge suspension at C, the plate G being also of polished steel, and rendered as hard as possible, to prevent the action of the knife-edge upon it. In order to relieve the suspension of the balance when the instrument is not in use, the two crotches F F are brought up by the screws shown in the figure, so as just to take off the pressure from the point of support. When the equilibrium is nicely supported, the needle, or index, C S, corresponds very accurately with zero on the graduated arc attached to the top or bottom of the principal stem, and which former, being fixed to the beam, will be displaced by, and indicate any want of due equipoise. The whole apparatus is, when used for nice experiments, enclosed in a case or frame, with glass faces, and which are only opened sufficiently to introduce the weights and body to be weighed. An instrument in its case, with the index pointing downwards, to save room, is shown in the figure.

The method of weighing a body is this:—Place the body, which we may denote B, in one of the scales of the balance; as, for example, in the scale A, to be put in equilibrio, by placing in the other scale A′, bodies of any weight, such as grains of lead, small pieces of copper, or the like; and lastly, small pieces of leaf copper, or paper, till the needle, or index, points exactly to zero on the graduated arc; the beam is then in equilibrio, and the weight in the two scales equal, or very nearly so. Take out now the body B, and replace it by different known weights, till the equilibrium is again obtained: and these weights together, will express the precise weight of the body. This method, it is obvious, is independent of the length of the arms, and even of the quantity of friction on the axis, because the body B, and its equal weights, are placed precisely in like circumstances, which is not the case in the common method of weighing. One thing, however, is here very essential, and must be attended to; viz. not to shake or disturb the apparatus in removing the body from the scale, as this may change a little the point of support, and alter the degree of friction. To prevent this, the crotches F, F′, are brought up to the beam, without removing it from its support; then before the body B is removed, another body, of about half its weight, is added. The former body B is now taken out, and weights, as

nearly as can be judged equal to it, are put in the scale; the other body is then removed, the crotches let down, and the balance left on its point of support as at first; and successive small weights added, till the equipoise is perfect.

Balance, the Bent Lever, is represented in fig. 7. Here ABC is a bent lever supported on its axis B in the pillar IH. At A is suspended the scale E, and at C is affixed a weight or a heavy knob. Draw the horizontal line KBG through B, the centre of motion, on which from A and C let fall the perpendiculars AK, CD; then if BK and BD are reciprocally in proportion to the weights at A and C, they will be in equilibrio; but if not, the weight C will move one way or other along the arc FG, till that ratio be obtained. If the lever be so bent that when A coincides with the line GK, C coincides with the vertical line BH, then as C moves along from F to G, its momentum will increase; whilst that of a weight in the scale E will decrease; hence, the weights in E corresponding to different positions of the balance, may be expressed on the graduated arc of the plate FG, the whole being used in the manner of the steel-yard.

Balance, the Chinese, is a steel-yard somewhat different in its form and application: it is much used by the eastern merchants in weighing gems and precious metals. The beam is a small rod of wood or ivory, about a foot in length: upon this are three lines of measure made of fine silver studded work, beginning from the end of the beam, whence the first is extended eight inches, the second six and a half, and the third eight and a half. The first is European weight, the other two Chinese. At the other end of the beam hangs a round scale; and at three several distances from this end are fastened so many fine strings at different points of suspension. The first distance makes $1\frac{3}{4}$ or $\frac{8}{9}$ of an inch; the second $3\frac{1}{4}$ or double the former; and the third, $4\frac{1}{4}$, or triple the same. When the instrument is used, it is held up by some one of the strings, and a sealed weight, of about an ounce and a quarter, troy, is hung upon some one of the divisions of the rule, so as to produce an equilibrium, the weight of the body being indicated by the graduated scale above referred to.

Balance, the Danish, is a kind of balance or steel-yard, in common use upon various parts of the continent of Europe. It consists of a batten of hard wood, having a heavy lump or knob at one end, and a swivel hook at the other. The goods to be weighed are suspended on the hook, and the whole is carried in a loop of whip-cord, in which it is slidden to and fro (when placed horizontally), till the goods suspended from the hook at one end are balanced by the knob at the other. The weight of the goods is estimated by the contact of the loop with a scale of divisions in harmonic progression.

Balance, Brady's, or Weighing Apparatus. One of the best modern inventions of the kind is represented in fig. 6. It unites the properties of the bent lever balance and the steel-yard. ABC is a frame of cast iron, having a great part of its weight towards A, where it is thicker than in its other parts: F is a fixed fulcrum, and E a moveable suspender, having a scale and hook at its lower extremity; K, E, G, are three distinct places to which the suspender EH may be applied; and to which belong respectively, the three graduated scales of division, or weights, *f*C, *c d*, *a b*. When the scale and suspender are applied at G, the apparatus is in equilibrio, with the edge AB horizontal, and the suspender cuts the zero on the scale *a b*; now a weight being applied, the whole apparatus turns about F, and the part towards B descends, till the equilibrium is again established; when the weight of the body is read off from the scale *a b*, which registers to ounces, and extends to two pounds. If the weight of the body exceeds two pounds, and be less than eleven pounds, the suspender is placed at E, and when the upper edge of the balance is horizontal, the weight or number 2, is found a little to the right of the index of the suspender; if now weights exceeding two pounds be placed in the scale, the whole again turns about F, and the weight of the body is shown on the graduated arc *c d*, which extends to eleven pounds, and registers to every two ounces.

If the weight of the body exceeds eleven pounds, the suspender is hung on at K, and the weights are ascertained in the same manner on the scale *f*C to thirty pounds, the subdivisions being on this scale quarters of pounds. The same principles would obviously apply to weights greater or less than the above. To prevent mistake, the three points of support, G, E, K, are numbered 1, 2, 3; and the corresponding arcs are respectively numbered in the same manner. When the hook is used instead of the scale, the latter is turned upwards, there being a joint at *m* for that purpose.

Balance, Hydrostatic, an instrument contrived to determine accurately the specific gravity of both solid and fluid bodies. It is constructed in various forms. We shall describe that which appears to be the most accurate.—V C G, fig. 2, is the stand or pillar of this hydrostatic balance, which is to be fixed in a table. From the top A, hangs, by two silk strings, the horizontal bar B,B, from which is suspended by a ring *i*, the fine beam of a balance *b*; which is prevented from descending too low on either side by the gently springing piece *t x y z*, fixed on the support M. The harness is annulated at *o*, to show distinctly the perpendicular position of the examen, by the small pointed index fixed above it. The strings by which the balance is suspended, passing over two pullies, one on each side the piece at A, go down to the bottom on the other side, and are hung over the hook at *v*; which hook, by means of a screw P, is moveable about one inch and a quarter backward and forward, and therefore the balance may be raised or depressed so much. But if a greater elevation or depression be required, the sliding piece S, which carries the screw P, is readily moved to any part of the square brass rod V K, and fixed by means of a screw. The motion of the balance being thus adjusted, the rest of the apparatus is as follows:—H H is a small board, fixed upon the piece D, under the scales *d* and *e*, and is moveable up and down in a low slit in the pillar above C, and fastened at any part by a screw behind. From the point in the middle of the

bottom of each scale hangs, by a fine hook, a brass wire *a d* and *a e*. These pass through two holes *m m* in the table. To the wire *a d* is suspended a curious cylindric wire, *r s*, perforated at each end for that purpose: this wire *r s* is covered with paper, graduated by equal divisions, and is above five inches long. In the corner of the board at E, is fixed a brass tube, on which a round wire *h l* is so adapted as to move neither too tight nor too free, by its flat head I. Upon the lower part of this moves another tube Q, which has sufficient friction to make it remain in any position required: to this is fixed an index T, moving horizontally when the wire *h l* is turned about, and therefore may be easily set to the graduated wire *r s*. To the lower end of the wire *r s* hangs a weight L; and to that a wire *p n*, with a small brass ball *g*, about one-fourth of an inch in diameter. On the other side, to the wire *a c*, hangs a large glass bubble R, by a horse-hair. Let us first suppose the weight L taken away, and the wire *p n* suspended from S: and, on the other side, let the bubble R be taken away, and the wire F suspended at *c*, in its room. This weight F we suppose to be sufficient to keep the several parts hanging to the other scale in equilibrium; at the same time that the middle point of the wire *p n* is at the surface of the water in the vessel O. The wire *p n* is to be of such a size, that the length of one inch shall weigh four grains. Now it is evident, since brass is eight times heavier than water, that for every inch the wire sinks in the water, it will become half a grain lighter, and half a grain heavier for every inch it rises out of the water: consequently, by sinking two inches below the middle point, or rising two inches above it, the wire will become one grain lighter or heavier. Therefore, if, when the middle point is at the surface of the water in equilibrium, the index T be set to the middle point *a* of the graduated wire *r s*, and the distance on each side *a r* and *a s* contains 100 equal parts; then, if in weighing bodies the weight is required to the 100th part of a grain, it may be easily had by proceeding in the following manner: Let the body to be weighed be placed in the scale *d*. Put a weight in the scale *e*, and let this be so determined that one grain more shall be too much, and one grain less too little. Then the balance being moved gently up or down, by the screw P, the equilibrium will be nicely shown at *a*; if the index T be at the middle point *a* of the wire *r s*, it shows that the weights put into the scale *e* are just equal to the weight of the body. By this method we find the absolute weight of the body: the relative weight is found by weighing it hydrostatically in water, as follows: Instead of putting the body into the scale *e*, as before, let it hang with the weight F, at the hook *c*, by a horse hair, as at R, supposing the vessel O of water were away. The equilibrium being then made, the index T standing between *a* and *r*, at the thirty-sixth division, shows the weight of the body put in to be 109,536 grains. As it thus hangs, let it be immersed in the water of the vessel O, and it will become much lighter; the scale *e* will descend till the beam of the balance rests on the port *z*. Then suppose 100 grains put into the scale *d* restore the equilibrium precisely, so that the index T stands at the thirty-sixth division above *a*; it is evident that the weight of an equal bulk of water would, in this case, be exactly 100 grains. In a similar manner this balance may be applied to find the specific gravity of liquids, as is easy to conceive.

Lukin's Hydrostatic Balance, an American invention, has the recommendation of simplicity, and is said in the Report of the Committee of the Academy of Sciences at Philadelphia, to be a very accurate instrument. It acts on the principle of the steel-yard; the arms being at equipoise, when unloaded; see fig. III. C is the body whose specific gravity is to be weighed, and it is suspended to the short arm of the instrument. On the longer arm A, the movable weight D indicates its weight in air or water. When greater accuracy is required, a second weight may be added on the long arm, which ought to be some determinate portion of D. Then, the division marked by the larger weight, will be units, and that of the smaller tenths, or 100ths as it may be contrived.

Coates's Hydrostatic Balance is also an instrument of American invention, upon the same principles, but differing in the mode of graduation: this being adapted to the purposes of finding the specific gravity of minerals; and therefore, instead of pointing out the actual and relative weights, it shows at once their specific gravity. The instrument is accurately balanced when unloaded, by making the shorter arm much larger than the longer one; and the latter is graduated and marked with numbers, which everywhere show the quotient of the entire length of the longer arm, divided by the distance of the mark from the end: thus, at half the length, is marked the number 2; at one-third the number 3, and so on; which numbers extend on the scale to rather more than twenty, in order to extend the use of the instrument to heavy minerals.

In using it, a weight is suspended by a hook at A, and the body under examination is to be hung by a horse-hair on the shorter arm, and slid along, as on the steel-yard, till an equipoise is obtained, say at D. Then, without altering its situation on the beam, the body is to be immersed in water, and balanced a second time, by sliding the weight C along the graduated arm, till the instrument is found again in equilibrio. The hook of this latter will then at once indicate, by its situation on the scale, the actual specific gravity of the body, water being considered as unity. The instrument being supposed in equilibrio, and B D and the weight of the counterpoise being constant, the weight of the body varies as the distance of the counterpoise from B, by the common principle of the lever.

The Balance of Torsion, fig. V. was invented by M. Coulomb, to estimate minute attracting and repelling forces in electricity, magnetism, &c. It consists of a vertical metallic thread, the upper end of which is attached to a point A, its lower end carrying a small weight *w*, and a little above it a light horizontal needle, *n*, *n*. To ascertain very small forces they are made to act on the extremity of this needle, and their intensity is appreciated by the angle of de-

viation which they cause in it, so that the forces are balanced by the torsion of the wire, and hence the denomination. The needle is enclosed in a glass cylinder, to protect it from the action of the air, and the thread is enclosed in a smaller cylinder fixed into the brass cover thereof. On the upper part of the small cylinder is placed a divided dial-plate, which, with very little friction, turns about the cylinder. The lever which carries the thread that suspends the horizontal needle, traverses this dial, and serves as an indicator, when it is requisite to have the torsion equal to a certain number of degrees. A circular division applied horizontally about the glass cylinder, opposite to the needle, measures the deviations of the latter when under excitation. Mr. Cavendish determined the mean density of the earth by estimating with this instrument the action of two leaden balls of known dimensions and specific gravity; and comparing the effect with that of terrestrial gravity. See *Phil. Trans.* anno. 1798.

The BALANCE, COMMON, or MODERN, generally used, consists of a lever or beam suspended exactly in the middle, having scales or basins hung to each extremity. The lever is called the jugum or beam; and the two moieties thereof, on each side the axis, the brachia or arms. The line on which the beam turns, or which divides its brachia, is called the axis; and, when considered with regard to the length of the brachia, is esteemed a point only, and called the centre of the balance: the handle whereby it is held, or by which the whole apparatus is suspended, is called trutina; and the slender part perpendicular to the beam, whereby either the equilibrium or preponderancy of bodies is indicated, is called the tongue of the balance.—Thus, in the diagram annexed, *ab* is the beam, divided into two equal brachia, or arms, by the white spot in the centre, which is the axis or centre of the balance, and *c* is the tongue. The trutina, on which the axis is suspended, is not represented in this figure, in order to render the other parts more conspicuous. It follows from what has been observed, that in the Roman balance, or steel-yard, the weight used for a counterpoise is the same, but the point of application varies; in the common balance the counterpoise is various, and the point of application the same. The principle on which each is founded, may be very easily understood from the general properties of the lever. See LEVER. The beam is a lever of the first kind; but instead of resting on a fulcrum, is suspended by something fastened to its centre of motion: consequently the mechanism of the balance depends on the same theorems as the lever. Hence as the quantity of matter in known weight is to its distance from the centre of motion, so is the distance of the unknown weight to its quantity of matter. The common balance is properly a lever, whose axis of motion is formed with an edge like that of a knife, and the other two dishes, or scales, at its extremities, are hung upon edges of the same kind, which are first made sharp, and then rounded with a fine bone, or a piece of buff leather. On the regular formation of this part, the excellence of the instrument essentially depends. When the lever, or beam of the balance, is considered as a mere line, the two outer edges are called points of suspension, and the inner the fulcrum. The points of suspension are supposed to be at equal distances from the fulcrum, and to be pressed with equal weights when loaded.

And now, observe, 1. If the fulcrum be placed in the centre of gravity of the beam, and the three edges be all in the same right line, the beam of the balance will have no tendency to one position more than another, but will rest in any position in which it may be placed, whether the scales be on or off, empty or loaded. 2. If the centre of gravity of the beam, when level, be immediately above the fulcrum, it will overset by the smallest action; that is, the end which is lowest will descend; and it will do this with the greater velocity, in proportion as the centre of gravity is higher, and the points of suspension are less loaded. 3. But if the centre of gravity of the beam be immediately below the fulcrum, the beam will not rest in any position but when level; and, if disturbed from that position, and then left at liberty, it will vibrate, and at last come to rest in an horizontal position. Its vibrations will be quicker, and its horizontal tendency stronger, the lower the centre of gravity, and the less the weight upon the points of suspension. 4. If the fulcrum be below the line joining the points of suspension, and these be loaded, the beam will overset, unless prevented by the weight of the beam tending to produce an horizontal position, as in the third case. In this case small weights will equilibrate, as in the former; a certain exact weight will rest in any position of the beam, as in the first case; and all greater weights will cause the beam to overset, as in the second. Money scales are often made this way, and will overset with any considerable load. 5. If the fulcrum be above the line joining the points of suspension, the beam will come to the horizontal position, unless prevented by its own weight, as in the second case. If the centre of gravity be nearly in the fulcrum, all the vibrations of the loaded beam will be made in times nearly equal, unless the weights be very small, when they will be slower. The vibrations of balances are quicker, and the horizontal tendency stronger, the higher the fulcrum. Finally, in the proper construction of the common balance, observe, that the points of suspension must be exactly in the same line as the centre of the balance; that they must be precisely equidistant from that centre on either side; and that the brachia must be as long as conveniently they may, in relation to their thickness, and the weight which they are intended to support; that there must be as little friction as possible in the motion of the beam and scales; and, lastly, that the centre of gravity of the beam must be placed a little below the centre of motion.

The equality of the arms of a balance is of use, in scientific pursuits, says Dr. Ure, chiefly in

making weights by bisection. A balance with unequal arms will weigh as accurately as another of the same workmanship with equal arms, provided the standard weight itself be first counterpoised, then taken out of the scale, and the thing to be weighed be put into the scale and adjusted against the counterpoise; or when proportional quantities only are considered, as in chemical and in other philosophical experiments, the bodies and products under examination may be weighed against the weights, taking care always to put the weights into the same scale. For then, though the bodies may not be really equal to the weights, yet their proportions among each other may be the same as if they had been accurately so. But though the equality of the arms may be well dispensed with, yet it is indispensably necessary that their relative lengths, whatever they may be, should continue invariable. For this purpose, it is necessary, either that the three edges be all truly parallel, or that the points of suspension and support should be always in the same part of the edge. This last requisite is the most easily obtained. The balances made in London are usually constructed in such a manner, that the bearing parts form notches in the other parts of the edges; so that the scales being set to vibrate, all the parts naturally fall into the same bearing. The balances made in the country have the fulcrum end straight, and confined to one constant bearing by two side plates. But the points of suspension are referred to notches in the edges, like the London balances.

Very delicate balances (continues this able writer) are not only useful in nice experiments, but are likewise much more expeditious than others in common weighing. If a pair of scales with a certain load be barely sensible to one-tenth of a grain, it will require a considerable time to ascertain the weight to that degree of accuracy, because the turn must be observed several times over, and is very small. But if no greater accuracy were required, and scales were used which would turn with the hundredth of a grain, a tenth of a grain, more or less, would make so great a difference in the turn, that it would be seen immediately.

If a balance be found to turn with a certain addition, and is not moved by any smaller weight, a greater sensibility may be given to that balance, by producing a tremulous motion in its parts. Thus, if the edge of a blunt saw, a file, or other similar instrument, be drawn along any part of the case or support of a balance, it will produce a jarring, which will diminish the friction on the moving parts so much, that the turn will be evident with one-third or one-fourth of the addition that would else have been required. In this way, a beam which would barely turn by the addition of one-tenth of a grain, will turn with one-thirtieth or fortieth of a grain.

Muschenbroek, in his Cours de Physique, (French translation, Paris, 1769) tom. ii. p. 247, says, he used an ocular balance of great accuracy, which turned (trebuchoit) with 1-40th of a grain. The substances he weighed were between 200 and 300 grains. His balance, therefore, weighed to the $\frac{1}{12000}$ part of the whole; and would ascertain such weights truly to four places of figures.

In the Philosophical Transactions, vol. lxvi. p. 509, mention is made of two accurate balances of Mr. Bolton; and it is said that one would weigh a pound, and turn with one-tenth of a grain. This, if the pound be avoirdupois, is $\frac{1}{70000}$ of the weight; and shows that the balance could be well depended on to four places of figures, and probably to five. The other weighed half an ounce, and turned with $\frac{1}{100}$ of a grain. This is $\frac{1}{24000}$ of the weight.

In the same volume, p. 511, a balance of Mr. Read's is mentioned, which readily turned with less than one pennyweight when loaded with fifty-five pounds, before the Royal Society; but very distinctly turned with four grains, when tried more patiently. This is about $\frac{1}{96000}$ part of the weight; and therefore this balance may be depended on to five places of figures.

Also, page 576, a balance of Mr. Whitehurst's weighs one pennyweight, and is sensibly affected with $\frac{1}{2000}$ of a grain. This is $\frac{1}{48000}$ part of the weight.

A balance belonging to Mr. Alchorne of the Mint in London, is mentioned, vol. lxxvii. p. 205 of the Philosophical Transactions. It is true to three grains with 15lb. an end. If these were avoirdupois pounds, the weight is known to $\frac{1}{50000}$ part, or to four places of figures, or barely five.

A balance (made by Ramsden, and turning on points instead of edges,) in the possession of Dr. George Fordyce, is mentioned in the seventy-fifth volume of the Philosophical Transactions. With a load of four or five ounces, a difference of one division in the index was made by $\frac{1}{1600}$ of a grain. This is $\frac{1}{384000}$ part of the weight, and consequently this beam will ascertain such weights to five places of figures, beside an estimate figure.

The Royal Society's balance, which was lately made by Ramsden, turns on steel edges, upon planes of polished crystal. 'I was assured,' says Dr. Ure, 'that it ascertained a weight to the seven-millionth part. I was not present at this trial, which must have required great care and patience, as the point of suspension could not have moved over much more than the 2-100th of an inch in the first half minute; but, from some trials which I saw, I think it probable that it may be used in general practice to determine weights to five places and better.

BALANCE, in ichthyology, or the balance fish. See SQUALUS.

BALANCE, in the woollen manufacture, is a machine invented by the Rev. W. Ludlam. The thread is made into skeins of the same length; and the fineness of it is denominated from the

number of skeins which go to a pound; the coarsest being about twelve to the pound, and the finest nearly sixty. This machine is designed for weighing skeins, in order to determine their respective fineness. It resembles the beam of a common pair of scales; at one end of it is fixed a weight, called the counterpoise, and at the other end a hook; in sorting, the skein to be examined is put upon the hook, and sinks down more or less, according to its weight, till the counterpoise, by rising, balances it: and then the index or cock of the beam, points out on a gradual arch, the number of skeins of that sort which go to the pound.

The Balance of a Clock or Watch, is that part which regulates the beats. The circular part of the balance is called the rim, and its spindle the verge; there belong to it also two pallets or nuts, that play in the fangs of the crown-wheel: in pocket watches, that strong stud in which the lower pivot of the verge plays, and in the middle of which one pivot of the crown-wheel runs, is called the potence: the wrought piece which covers the balance, and in which the upper pivot of the balance plays, is the cock; and the small spring in the new pocket watches is called the regulator. The motion of a balance, as well as that of a pendulum, being alternate, while the pressure of the wheels is constantly in one direction, it is obvious that some art must be used to accommodate the one to the other. When the tooth of the wheel has given the balance a motion in one direction, it must quit it, that it may get an impulsion in the opposite direction. The balance or pendulum thus escaping from the tooth of the wheel, or the tooth escaping from the balance, has given to the general construction the name of scapement.

Before the invention of the pendulum, clocks were regulated by an horizontal balance, having a vertical axis, that passed through two holes, with liberty to play up and down; and that suspended by means of a string passed through a hole in the axis and fastened at both ends, so as to form equal angles with the axis itself. Consequently, when the balance revolved in one direction, the string was wound upon the verge, and being thus shortened, raised it up until the weight of the balance had overcome the force of rotation: after which it revolved the contrary way, and descended to perform a similar ascent by winding the string the opposite way.

A supposed Balance of Power, in the political system, originates from, and is maintained by, the alliances of different nations, as their circumstances and interest may require. The preservation of the balance of power has generally implied the maintaining of such a degree of equality among the powers of Europe, in general, as may prevent any enormous accumulation of power, or any attempt at universal monarchy, on the part of any one of them. To preserve this balance, much blood has been shed, and money spent, since the revolution of 1688; but the revolution of France, and the wars arising out of it, have hopelessly deranged all former theorems and calculations upon this subject. Robertson and other historians have said, that the principle of the balance of power was a discovery of the fifteenth century, made by the Italian politicians on the invasion of Charles VIII. Against such statements we might adduce the arguments of Hume and others, who have traced in ancient times vastly more refined notions of policy than any that dictated the Italian defensive league. It was not, in truth, to any such single event that the balancing system owed either its origin, or its refinement; but to the progress of society, which placed the whole states of Europe in the same relative situation in which the states of Italy were at that period; and taught them not to wait for an actual invasion, but to see a Charles at all times in every prince or commonwealth that should manifest the least desire of change. See *Edinburgh Review*, vol. I. p. 354.

Balance of Trade. That which is commonly meant by the balance of trade, is the relative quantity of foreign commodities compared with the exportation of home productions or manufactures. And it has been reckoned that the nation which exports most of its own commodities, has the advantage of the balance of trade. The reason is, that, if its own commodities be of a greater value than are imported, the balance of that account must be made up in bullion or money; and the nation grows so much richer, as the balance of that account amounts to. But this reasoning admits of many qualifications. See Commerce and Economy, Political.

BALANCERS, or Poizers, in entomology, (in French, balanciers, and the halteres of Linnæus), denoting those little filamentous bodies which terminate in a round, truncated, or oval capitulum, or knob; and of which one is placed on each side of all the dipterous or two-winged insects, under a small scale below the wing. In different genera these vary a little in respect of situation, and are also of larger or smaller size, in proportion to the other parts of the insect, in different kinds.

BALANCIER, a machine used in the striking of coins, medals, counters, and the like. See Coinage.

BALANCING, among seamen, the contracting a sail into a narrower compass, in a storm, by retrenching or folding up a part of it at one corner: this method is used in contradistinction to reefing, which is common to all the principal sails; whereas balancing is peculiar to few, such as the mizen of a ship, and the main-sail of those vessels wherein it is extended by a boom. See Boom and Reef. The balance of the mizen is thus performed: the mizen yard is lowered a little, then a small portion of sail is rolled up at the peek or upper corner, and fastened to the yard about one-fifth inward from the outer end or yard-arm, toward the mast. See Mizen. A boom main-sail is balanced, after all its reefs are taken in, by rolling up a similar portion of the hindmost or aftmost lower corner, called the clue, and fastening it strongly to the boom, having previously wrapped a piece of old canvass round the part (which is done in both cases) to prevent the sail from being fretted by the cord which fastens it.

BALANITES, in natural history, a name given by the ancients to a stone, seeming to have been of the semipellucid gems. They describe two species of it; the one yellow, and the other

green, but each having veins of a flame color. Their descriptions are too short for us to ascertain what stone, among those known at this time, they meant. Some suppose it to have been the lapis judaicus, on account of its acorn-like figure and size.

BALANOIDES, in conchology, a species of lepas, with a conic truncated smooth shell, and obtuse operculum. Linn. Fn. Suec. Donov. &c. This is balanus parvus vulgaris of Petiver; and a variety of it with a long tubular stalk is described by Da Costa, Pennant, and Donov. Brit. Shells, Dr. Leach includes the whole of this species, with additional ones, in his class corrhipedes.

BALANUS, *βαλανος*, in anatomy, is used for the glans penis, and sometimes for the clitoris.

BALANUS MYREPSICA, in the materia medica, the oily acorn. The whole nut is of a purging quality; and the dry pressing or powder, after the oil is taken out is of a cleansing and drying nature.

BALAO, a river of the province of Guayaquil, in the kingdom of Quito, which runs into the sea, in the gulf of that name.

BALASFALVA, or BLASENBURG, a town of Transylvania, in the county of Kockelburg, at the conflux of the Great and Little Kockel, having a castle, and being the residence of a bishop of the united Greek church of Wallachians.

BALASORE, a sea-port of Asia, on the north-west of the bay of Bengal, four miles from the sea by land, but twenty by the windings of its river, the Booree Bellaun, which produces plenty of fish. It is navigable for vessels of 100 tons. Here the pilot of Calcutta waits the arrival of vessels: and the English, Dutch, and Portuguese all had factories here in the seventeenth century; it was ceded to the Mahrattas in 1751, but in 1803 given up by the Nagpore Rajah to the English. Balasore is in the province of Orissa, 110 miles south-west from Calcutta.

BALATITI, in natural history, a name given by the people of the Philippine islands to a species of birds, by the flight of which they divine the event of things.

BALATON, a lake of Hungary, between the counties of Szalad, Wesprim, and Schumeg, five miles south of Stuhl-Weissenburg. It is nearly 40 miles long, and from one to four broad, formed originally by the river Szala, and augmented by a number of other streams. The water, it is said, may be preserved for nearly two years without putrefaction. It contains some fish as well as birds of rare occurrence, which are bought up for exportation. The Austrian government have lately projected an union between this lake and the Danube, by a canal, but the works proceed slowly.

BALATOV, or BALASCHEV, the capital of a circle in the government of Saratov, in European Russia. To the north are extensive forests, and to the south almost interminable heaths, or steppes. It is situated on the Khoper, which falls into the Don. Ninety miles west of Saratov, and 634 south-east of St. Petersburgh.

BALAUSTIA, or BALAUSTINES; from *βαλαυστιον*, in pharmacy, the flowers of the wild pomegranate, which are very rough to the tongue and palate, and very astringent; on that account they are frequently used in diarrhœas, hernias, &c.

BALAUSTINES in botany. See PUNICA.

BALAYAN, a province of Manilla, next to the city of Manilla, and extending along the coast on the east side of the island, a little beyond the bay of Batangas. There were formerly gold mines in it, but they have been long since abandoned.

BALBASTRO, a town of Arragon, in Spain, near the junction of the Vero and Cinca, having a population of 5000, and a dependent jurisdiction of 170 parishes. Tanning is the chief pursuit here. Thirty miles E. N.E. of Saragossa, and 47 north-west of Barcelona.

BALBEC, or BAALBECK, a city of Asia, in Syria, anciently Heliopolis, and called by the Arabians, The Wonder of Syria. It is situated at the foot of Anti-Libanus, on the ground where the mountain terminates in the plain, thirty-seven miles north of Damascus. In travelling to it from the south, it is seen only at the distance of a league and a half, behind a hedge of walnut-trees, over the verdant tops of which appears a white edging of domes and minarets. It has a ruined wall, flanked with square towers, which ascends the declivity to the right. This low wall permits a view of those void spaces and heaps of ruins which are the invariable appendages of every Turkish city; but what principally attracts attention is a large edifice on the left, whose lofty walls and rich columns designate it as having been amongst the most splendid of ancient temples. The apparent length of this edifice was about 900 feet, and its width 450. The entrance to the pronaos, or portico, was by a row of twelve columns, flanked by wings ornamented with pilasters. It was approached by a magnificent flight of steps, of which there are but few remains. The interior of the portico is choked up with heaps of ruins, but these, when surmounted, lead to an hexagonal court of 180 feet diameter, strewed with broken shafts of columns, mutilated capitals, wrecks of pilasters, bases, and other architectural and sculptural fragments. The buildings in this and the adjoining court appear to have been appropriated for academies and lodgings for the priests. Through an opening at the end of this court is a vast perspective of ruins, which are best viewed from the top of a slope that was formerly a staircase, which communicates with a rectangular court, 350 feet long and 346 wide. At the end of the court are six enormous columns; and to the left is another row of columns which formed the peristyle to the body of the temple. The buildings to the right and left form a sort of gallery, which is divided into seven parts, to each of the great wings or lateral buildings. At the extremity of this court is the cell or body of the temple itself, where are the before-mentioned six colossal columns. Their shafts measure twenty-two feet in circumference, and fifty-eight in height; and the whole height of the order (the Corinthian) nearly seventy-two feet. On examining the circumjacent site, a row of bases was discovered, arranged in a parallelogrammatic form of 270 feet in length, and 150 in width. This belt of columns encompassed the

cell or body of the temple, which was decastyle (ten columned) in front, with nineteen columns in flank, and of the fourth or peripteral order of temples; but its intercolumniations do not accord with any of the five species described in the system of Vitruvius. These buildings are all of the Corinthian order, with the exception of some pilastral elevations, which are of the Composite. A second temple is situated near the southmost part of the city, upon an irregular site. It is pseudodipteral, and does not appear to have been surrounded by a peristyle and court like the former. It is, however, in a better state of preservation, having very lately eight columns in front, and thirteen in flank, of the Corinthian order. Their shafts are about sixteen feet in circumference, and forty-four in height.

Balbec also possesses, in the southern part of the city, a circular temple, differing in every respect from the precepts of Vitruvius: its lower story is used for a Greek church. Its plan is extremely whimsical, and all its details present a mass of architectural anomalies.

Few architectural remains of the ancient world are more rich in decoration than those of Balbec. The soffites and ceilings of the peristyle are panelled in lozenge forms, with representations of Jupiter and his eagle, Leda and the swan, Diana with her bow and crescent, and various busts in the costume of emperors and empresses. All the members of the interior entablatures are loaded with a profusion of ornaments. The archivolts, the heads of the niches, the frieze of the principal order, are covered with the most sumptuous embellishments of sculpture. The interior columns are all fluted, and those of the exterior plain. Dr. Pococke conceives that nothing can be finer than the entrance to the great temple. Almost all the members are enriched with sculptural representations of flowers and fruit, and the frieze with ears of corn, of admirable execution. According to Volney, the walls of the smaller temple suffered much from the earthquake of 1759; which is confirmed by our countryman, who, in 1784, found but six columns of the great temple standing out of the nine, which were erect in 1751; and twenty only out of twenty-nine belonging to the smaller temple. The rapacity of the Turks has also contributed to their destruction, from their desire of possessing the iron pins and clamps with which the huge blocks of masonry are joined.

The massiveness, indeed, of the stones and blocks of marble is not the least remarkable feature of these ruins. No modern mechanical contrivance, it is said, could convey such masses from any distance into their present positions. Stones, from twenty-eight to thirty-five feet long, and nine in depth, form the second layer of the great temple. One is even fifty-nine feet long and twelve deep.

The period of the erection of these edifices seems to be a question lost in entire obscurity. The age of Aurelian, from the similarity of their style with that of the Palmyra edifices, would seem to be the most probable. Here is the same compound of Grecian forms with Asiatic adornment and luxuriant display, the same fantastical ornaments, united with occasional grandeur of design and boldness of execution.

The town now inhabited is small and mean, but about four miles in circuit. The population has been for a long period gradually decreasing: the town was computed, in 1751, to contain 5000, and in 1784, to contain only 1200 poor and indolent inhabitants, cultivating a little cotton, maize, and water-melons, for their subsistence. History has preserved but few traces of this place. About 140 years before the time of Antoninus Pius, it was garrisoned by Roman troops. Some writers state that he erected the principal part of the present edifice on the site of one more ancient. Under Constantine it was neglected, and the great temple soon after converted into a church: thus it was appropriated until the irruption of the Arabs, when it fell rapidly into decay. After a vigorous defence, the town was taken by that nation, under Abu Obeidah, a commander of the caliph Omar. In 1401 it was taken by Tamerlane. An earthquake, in 1759, nearly completed its destruction. Distant forty miles N.N.W. of Damascus, and 110 S. of Aleppo.

BALBINUS, Decimus Cœlius, emperor of Rome, was elected by the senate, A.D. 237, but massacred, along with his colleague, Maximus, soldiers.

BALBO (Vasco Nuñes de), a Castilian; a celebrated navigator, and one of the first discoverers of South America. He was beheaded by the Spanish govenor of St Mary, through jealousy of his growing reputation, in 1517, aged forty-two.

BALBU'CINATE, *v. n.* From Lat. *balbutio*, to stammer in speaking. *Dict.*

BALBUL, in ornithology, a species of Anas, or duck having a black beak, and spot on the wing, above obliquely green, beneath obliquely black. Forsk. Fn. Arab.

BALBUS (Lucius Cornelius Theophanes), was born at Cadiz, and distinguished himself by his valor in the war carried on by the Romans in Spain against Sertorius and the Lusitanians, on which account Pompey gave him the privileges of a Roman citizen. He was consul in the 714th year of Rome, and was the first foreigner on whom that dignity was conferred. He was the friend of Pompey, Cæsar, Crassus, and Cicero.

BALBUSARDUS, in ornithology, the name used by authors, for the bird called in English the bald buzzard. It is of the long-winged hawk kind, and has been described by Aldrovandus and some other authors, under the name of the Haliætus and Morphnus, two species of the eagle. It frequents the shores of ponds and rivers, and sometimes of the sea, where it preys on fish. It builds on the ground among reeds, and lays three or four large white eggs, nearly as big as hens' eggs.

BALBU'TIATE, *v. n.* The same with *balbucinate*.

BALCAIRN, a place in Perthshire, in the parish of Clunie, which some antiquarians suppose to have been the scene of the decisive battle between Agricola and Galgacus.

BALCANQUAL (Walter), an eminent Scottish divine, who attended James I. to England, and at Oxford took the degree of D.D. He

became his majesty's chaplain, master of the Savoy, and representative of the church of Scotland, at the synod of Dort. He was appointed dean of Rochester in 1625, and of Durham in 1639. During the rebellion he underwent many hardships, being obliged to fly from place to place. He died on Christmas day, 1645, at Chirk castle in Denbighshire; he wrote, Epistles concerning the Synod of Dort, and the Declaration of King Charles I. concerning the late tumults in Scotland, folio, 1630.

BALCARRA, a town of Ireland, in the county of Mayo, 115 miles from Dublin.

BALCARRY, a free port on the west coast of Scotland, in the Stewartry of Galloway, and parish of Rerwick. It is naturally a safe and commodious harbour.

BALCHRISTIE; Gael. *i. e.* the town of Christian; a village of Fifeshire, in the parish of Newburn, anciently given to the Culdees, by king Malcolm III. and his queen St. Margaret. Tradition reports that the first Christian church in Scotland was built in this village.

BALCK, a town of Usbeck Tartary, on the frontiers of Persia, 200 miles south of Bokhara.

BALCLUITHA, a settlement in the south part of Kentucky, on the west side of Big Sandy river.

BALCO'NY, *n. s.* Fr. *balcon;* Ital. *balcone*, a frame of iron, wood, or stone, before the window of a room.

Then pleasure came, who, liking not the fashion,
Began to make *balconies*, terraces,
Till she had weaken'd all by alteration. *Herbert.*

When dirty waters from *balconies* drop,
And dext'rous damsels twirl the sprinkling mop.
Gay.

BALCONY in a ship, denotes a gallery either covered or open, made abaft, either for ornament or convenience of the captain's cabin.

BALD', *adj.* } Welch *bal*, wanting hair.
BALD'LY, *adv.* } A bare surface which is
BALD'NESS, *n. s.* } usually covered or fledged by nature. In the human species this is usually the effect of time, vexation, fever, or cutaneous disease of the parts, or, as some say, the dryness of the brain. It is figuratively employed to denote whatever is inelegant and meagre of thought, in literary composition or verbal discourse; whatever is mean, undignified and valueless, in character and disposition.

Come hither goodman *bald* pate. Do you know me?
Shakspeare.

Why you *bald* pated lying rascal, you must be hooded must you! *Id.*

Under an oak, whose boughs were moss'd with age,
And high top *bald* with dry antiquity. *Id.*

This *bald* unjointed chat of his, my lord,
I answered indirectly. *Id.*

What should the people do with these *bald* tribunes?
On whom depending, their obedience fails
To th' greater bench. *Id.*

He should imitate Cæsar, who, because his head was *bald*, covered that defect with laurels. *Addison.*

Hobbes, in the preface to his own *bald* translation, begins the praise of Homer where he should have ended it. *Dryden's Fables, Preface.*

And that, though labour'd, line, must *bald* appear,
That brings ungrateful musick to the ear. *Creech.*

BALDNESS occurs chiefly on the sinciput. It differs from alopecia, acea, ophiasis, and tinea, as these all arise from some vices in the nutritious humor; baldness, from the defect of it. When the eye-lids shed their hair, it is called a ptilosis. Among the causes of baldness, immoderate venery is reputed one of the chief: old age usually brings it on of course; and it frequently results from violent fevers. Eunuchs and women are almost always free from it, and Aristotle says that it never can precede the age of puberty. Herodotus, iii. 12, says the Egyptians seldom went bald, because they shaved their heads from childhood, and thus hardened them in the sun! Calvus (bald), among the Romans, was a term of reproach. Thus Juvenal calls Domitian, calvus Nero. The later Romans, however, seem to have been reconciled to baldness; for we find among them a kind of officers, or servants, called glabratores or glabrari, whose business was to take off the hair from all parts, even from the head. In an ancient inscription there is mention made of one Diophantus, TI. CÆSARIS ORNATOR GLABR. that is, Ornator Glabrarius. We have seen it somewhere observed that the majority of Englishmen, above forty, are more or less bald. Buffon observes that the crown of the head, and the space immediately above the temples, are the parts which first become bald; but that the hair below the temples, and on the inferior part of the back of the head, seldom falls off. He also adds, that baldness is peculiar to men. In its early stages nutritives, particularly a tea made of abrotonum, southernwood, have been advised to be applied to the roots of the hair.

BALDACANIFER, or BALCANIFER, a standard-bearer; chiefly in the ancient order of knights Templars.

BAL'DACHIN, *n. s.* Ital. *baldachino*, a piece of architecture, in form of a canopy, supported with columns, and serving as a covering to an altar. It properly signifies a rich silk, *Du Cange*, and was a canopy carried over the host.

BALDACHIN, BALDAKIN, BALDEKIN, or BAULDEKIN, in middle-age writers, a rich kind of cloth made of gold warp and silk woof, variously figured. It took the denomination from its being formerly brought into these countries from Baldacio, or Babylon.

BALD-BUZZARD, in ornithology, the name given by Willoughby and others to the Falco Haliaëtos, or Osprey. It is the balbuzzard of Buffon. See BALBUSARDUS.

BALD EAGLE, or Sinking-Spring Valley, lies upon the frontiers of Bedford county, in Pennsylvania, about 200 miles west of Philadelphia. It is bounded on the east by a chain of high rugged mountains, called the Canoe ridge; and on the west by the Bald Eagle, or Warrior mountains, and is a pleasant vale, having a limestone bottom, about five miles wide; its vicinity abounds with lead-ore, and shows signs of pit coal. The curiosity of this place is the swallows, which absorb several of the largest streams in the valley, and after conveying them several miles under ground, return them again to the surface. Hence its name of Sinking-Spring Valley. The most remarkable of these is called the Arch

Springs, which run close upon the road from the town to the fort; being a deep hollow formed in the lime-stone rock, about thirty feet wide, covered with a stony arch, and giving passage to a fine stream of water, which enters the mouth of a spacious cave, whose exterior aperture is sufficient to admit a shallop with her sails full spread. In the midst of this cave, from eighteen to twenty feet wide, are timber, bodies and branches of trees, &c. which, being lodged up to the roof of the passage, show that the water rises to the top during freshes. The cave, extending about forty yards, widens into a large kind of room, at the bottom of which is a vortex, where the water forms a whirlpool, and absorbs pieces of floating timber, which are instantly conveyed out of sight. From the top of the Bald-eagle mountains is a fine prospect of those of the Alleghany.

Bald Eagle, a river of the United States which runs forty-four miles north-west, and falls into the Susquehanna.

Bald Eagle Creek, a head water of the Huron.

BAL'DERDASH, *n. s.* & *v. a.* Probably of Sax. balb, bold, and *dash*, to mingle; any thing jumbled together without judgment; rude mixture; a confused discourse. The verb is derived from the noun, and signifies to mix or adulterate any liquor. Balderdash, in its primary sense, probably signified the froth or foam made by barbers in dashing their balls backwards and forwards in hot water.

They would no more live under the yoke of the sea, or have their heads washed with his bubbly spume or barbers *balderdash*. *Nashe, Lenten stuffe.*

It is against my freehold, my inheritance,
To drink such *balderdash*, or bonny clabber!
Ben Jonson.

Mine is such a drench of *balderdash*.
Beaumont and Fletcher.

Bald Head, an island at the mouth of Cape Fear river, North Carolina. A light-house was erected here in December 1794; four miles N. N. W. of Cape Fear.

Bald Head, the south-west part of West Bay, in the district of Maine.

Bald Head, a point on the north-western shore of America, in Norton sound. Long. 198° 18′ E., lat. 64° 43′ N.

Bald Head, a promontory of New Holland, about 400 feet high, on the south-west coast, at the mouth of King George's sound. Branches of coral appearing through the surface of the top, have given rise to a conjecture that this promontory emerged from the sea. Long. 118° E., lat. 35° 6′ S.

BALDI (Bernard), an Italian mathematician and poet, born at Urbino in 1553. He studied at Padua and afterwards became mathematician to the duke of Guastalla. He wrote several excellent poems in the Italian language, and translated the works of various ancient mathematicians into that language. He died in 1617. His Lives of Mathematicians were printed in 1707.

BALDINI (John Anthony), an Italian nobleman, born at Placentia, in 1654. He was a man of great learning, and employed as ambassador at different courts of Europe. He was also at the congress of Utrecht. He made a large collection of curiosities and books; a catalogue of which was printed in the Italian Literary Journal. He died in 1725.

BALDINUCCI (Philip), of Florence; a connoisseur in the polite arts, and the continuator of Vasari's lives of the painters. He died in 1696, aged seventy-two.

Bald Island, an island off Mount Gardner, on the south-west coast of New Holland, about two miles long. Long. 18° 29′ E., lat. 34° 55′ S.

BALDIVIA, or Valdivia, a sea-port town of Chili in South America. It is situated between the rivers Callaculles and Portero, where they fall into the South Sea, and was built in 1551 by the Spanish general Valdivia, from whom it takes its name. In 1643 it was taken by the Dutch, who would probably have maintained their conquest against all the power of the Spanish viceroy, had they not been obliged to relinquish it through sickness and famine.

BALD'MONY, *n. s.* Gentian; a plant.

BALDO Monte, a mountain of Italy, the highest in the Veronese. It is situated at the head of lake Garda, and is famous for its rare plants. Sea shells are found upon the top of it.

BALDOCK, a market-town and parish of Herts, eight miles south from Biggleswade, and thirty-seven north from London; containing 1600 inhabitants. It is a neat, pleasant place, originally built by the knights-templars, in the reign of Stephen, and stands on the old Roman road, Ikening street, and the present great north road. The church is large and handsome, with three chancels. There is a well-endowed alms-house, and several excellent charities in this parish. Market on Thursday. The chief articles of trade are corn and malt.

Baldock (Ralph de), bishop of London under Edward I. and II., was educated at Mertons college in Oxford; became dean of St. Paul's; was afterwards promoted to the see of London; and at last was made lord high chancellor of England. He had a very amiable character both for morals and learning; and wrote Historia Anglica, or an history of the British affairs, down to his own time, and a Collection of the Statutes and Constitutions of the church of St. Paul. He died at Stepney, July 24, 1313.

Bald-Pate, in zoology, a name given by Ray to the columba leucocephala.

BALDRED; Sax. from bald, bold, and rede, counsel; the last king of Kent.

BALD'RICK, *n. s.* It was formerly written *baudrick*, and signified a belt of leather, from the old French *baudrier*, derived from the verb *baudroyer*, to dress skins. It is now used to signify a girdle, a bracelet, and has been applied to the zodiac.

Athwart his breast a *baldrick* braue he ware,
That shin'd like twinkling stars, with stones most precious rare. *Spenser.*
That like the twins of Jove, they seem'd in sight,
Which deck the *baldrick* of the heavens bright. *Id.*
That a woman conceived me, I thank her; that she brought me up, I likewise give her most humble

thanks: but that I will have a recheat winded in my forehead, or hang my bugle in an invisible *baldrick*, all women shall pardon me. *Shakspeare.*

A radiant *baldrick* o'er his shoulders ty'd,
Sustain'd the sword that glitter'd at his side. *Pope.*

BALDRICK was a belt worn by the Saxons, hanging from the shoulder across the breast, on which the sword was hung.

BALDWIN, archbishop of Canterbury, was born of obscure parents at Exeter, where, in the early part of his life, he taught a grammar school; after which he took orders and was made archdeacon of Exeter; but resigned and became a Cistertian monk in the monastery of Ford in Devonshire, of which in a few years he was made abbot. In 1180 he was consecrated bishop of Worcester. In 1184 he was promoted to the see of Canterbury by pope Lucius III., and by his successor Urban III. was appointed legate. In 1189 he crowned king Richard I. at Westminster; and soon after followed that prince to the holy land, where he died at the siege of Ptolemais. He wrote various tracts on religious subjects, which were collected and published by Bertrand Tissier in 1662.

BALDWIN I. earl of Flanders, was proclaimed emperor of Constantinople, A. D. 1204, in opposition to Theodore Lascaris, but enjoyed his new dignity little more than a year. He was succeeded by his brother Henry, who took Constantinople in 1206.

BALDWIN II., emperor of Constantinople, succeeded Robert the fourth Latin emperor, A. D. 1229, and reigned thirty-three years; but was expelled by Michael VIII., who recovered Constantinople, and thus put an end to the empire of the Latins in the east, A. D. 1261.

BALDWIN (Francis), a learned civilian, born at Arras, in 1520. He is said to have changed his religion four different times, from the Protestant to the Catholic faith, and vice versa. He however obtained successively the patronage of the emperor Charles V. Anthony king of Navarre, and Henry III. king of Poland; the latter of whom having invited him to his court, he was making preparations for his journey, when he was seized with a fever, of which he died in 1572. He wrote Leges de Rustica: Novella Constitutio prima; de Hæredibus et Lege Flacidia; and other works.

BALDWIN I. king of Jerusalem, was the son of Eustace, count of Boulogne. Having accompanied his brother Godfrey into Palestine, he there obtained the country of Edessa. He ascended the throne of Jerusalem as his brother's successor in 1100, and next year took Antipatris, Cesarea, and Azotus; and Acre, after a long siege, in 1104. He died in 1118, and was interred on Mount Calvary. He was an active and enterprising prince.

BALDWIN II. son of Hugh, count of Rethel, succeeded to the throne in 1118, after Eustace, the brother of Baldwin I. had given up all claim to it. In 1120 he gained a great victory over the Saracens, but was made prisoner by them in 1124; and gave up the city of Tyre to obtain his liberty. He died in 1131.

BALDWIN III. IV. and V. were also kings of Jerusalem in the latter part of the twelfth century; the last of this name being poisoned, it was thought, by his mother, in 1186.

BA'LE, *n. s. v. n.* & *v. a.* Fr. *emballer*, Ital. *imballare*, a bundle or parcel packed up for carriage; a pair of dice. To make up into a parcel. As used by sailors, it is distinguished from pumping, and signifies to lave out water from hand to hand; from the French *bailler*.

One hired an ass in the dog-days, to carry certain *bales* of goods to such a town. *L'Estrange.*

It is part of the *bales* in which bohea tea was brought over from China. *Woodward.*

It is a false dice of the same *bale*, but not the same cut. *Overbury.* Charac. sign. Q. 2.

For exercise of arms a *bale* of dice.
Ben Jonson, New Inn.

BALE', *n. s.* } Sax. bæl; Dan. *bale*,
BALE'FUL, *adj.* } Icelandic *bal*, *bol*; Cimb.
BALE'FULLY, *adv.* } *baul*; Sax. bealopull. Misery, calamity, mischief, poison, its genuine meaning.

And I salle telle that tale, or I ferrer go,
Now falsnes brewes *bale* with him, and many mo.
R. Brunne, p. 55.

She look'd about, and seeing one in mail
Armed to point, sought back to turn again;
For light she hated as the deadly *bale*.
Faerie Queene.

But when he saw his threat'ning was but vain,
He turn'd about, and search'd his *baleful* books again.
Id.

Thenceforth they playne, and make full piteous mone
Unto the author of their *balefull* bane. *Spenser.*

Such stormie stoures do breed my *balefull* smart,
As if my yeare were wast and woxen old. *Id.*

Boiling choler chokes,
By sight of these, our *baleful* enemies.
Shakspeare.

Round he throws his *baleful* eyes,
That witness'd huge affliction and dismay,
Mix'd with obdurate pride and stedfast hate.
Milton.

Unseen, unfelt, the fiery serpent skims
Betwixt her linen and her naked limbs,
His *baleful* breath inspiring as he glides.
Dryden.

Happy Ierne, whose most wholesome air
Poisons envenom'd spiders, and forbids
The *baleful* toad and vipers from her shore.
Philips.

BALE, in commerce, is particularly applied to a quantity of packed up merchandise, well secured for carriage or voyages. To sell goods in the bale is to sell them in the lump, on showing a specimen, without unpacking or taking off the cordage. Thus the East India Company and others sell their goods. In the East India trade, the bulky goods are salt-petre, pepper, red earth, tea, &c. Bale goods stand opposed to piece goods.

A BALE of camlet, at Smyrna, is called a table, on account of its flat square.

A BALE of cotton yarn is from 300 to 400 weight.

A BALE of dice denotes a little packet of paper, containing some dozens of dice.

A BALE of dowlas, or of lockram, consists of either three, three and a half, or four pieces.

A BALE of paper denotes a certain, or rather uncertain number of reams packed together.

a bundle. Those sent from Marseilles to Constantinople usually contain twelve reams. A bale or ballon of crown paper, manufactured in the departments of the Var, the Lower Alps, and the mouths of the Rhone, consists of fourteen reams.

A BALE of raw silk contains from 100 to 400 weight.

BALE (John), bishop of Ossory in Ireland, was born at Cove, in Suffolk, in 1495. At twelve years of age he was entered in the monastery of the Carmelites, Norwich. He was educated a Roman Catholic; but, being converted to the Protestant religion by Thomas Lord Wentworth, on the death of Lord Cromwell, who protected him from the Romish clergy, he was obliged to retire into the Low Countries, where he continued eight years. Soon after the accession of Edward VI. he was recalled; and being first presented to the living of Bishop's Stoke in Hampshire, in 1552, was nominated to the see of Ossory. During his residence in Ireland he was remarkably assiduous in propagating the protestant doctrines; but frequently at the hazard of his life. Once five of his domestics were murdered, as he would probably have been, had not the sovereign of Kilkenny come to his assistance with 100 horse and 300 foot. On the accession of queen Mary, the tide of opposition became so powerful, that he embarked for Holland, but was very unfortunate in his escape. First he was taken by a Dutch man of war, and robbed of all his effects. Then, being forced by stress of weather into St. Ive's in Cornwall, he was confined on suspicion of treason. Being released after a few days confinement, the ship anchored in Dover road, where he was again seized on a false accusation. After his arrival in Holland he was kept prisoner for three weeks, and at length obtained his liberty on paying £30. From Holland he travelled to Basil in Switzerland, where he continued till queen Elizabeth ascended the throne. After his return to England he was, in 1560, made prebendary of Canterbury, not choosing to return to his former flock of wolves. He died in November 1563, at Canterbury, aged sixty-eight. He was so severe a writer against the church of Rome, that his books are particularly prohibited in the expurgatory index, published at Madrid in 1667. Most of his writings are attacks upon the religion he had abandoned. His Brief Chronicle concerning Sir John Oldcastle was republished in 1729; and he is also the author of many strange productions in English metre, among which are several plays on sacred subjects, a specimen of which may be seen in the Harleian Miscellany. To modern readers they would appear strange burlesques; but, as the author himself informs us, they were gravely and piously represented in his own days by young men at the market-cross of Kilkenny. The principal work of bishop Bale is his Scriptorum Illustrium Majoris Britanniæ Catalogus; or, An Account of the Lives of eminent Writers of Britain; which, according to the title, commences with Japhet the son of Noah, and reaches to the year 1557! It formed the foundation of all the large subsequent compilations of this kind.

BALE, BASLE or BASIL. See BASLE.

BALEARES INSULÆ, or BALEARIC ISLANDS, islands in the Mediterranean, so called from Βαλλειν, because the inhabitants were excellent slingers. But Bochart makes the name of Punic or Phœnician original, as were the people: Baal-jare, signifying a master, or skilful at throwing; the Phœnicians and Hebrews being dexterous at the use of the sling. The Greeks called these islands Gymnasia, because, in summer, the inhabitants went naked, or rather because they were only armed with a sling in war. There are two principal ones called Major and Minor; and hence the modern names Majorca and Minorca. The Major is distant from the Minor thirty miles to the west; in length 40 miles, and in circuit 150. They were subdued by Quintus Metellus, A. A. C. 120. The Baleares, together with the adjacent islands, were a part of the Provincia Citerior or Tarraconensis, and of the resort of the Coventus Carthaginiensis, or New Carthage. These islands are called Cheorades, by Apollonius, and Choeradades, by Strabo, i. e. rocky. See MAJORCA and MINORCA.

BALEARICUS, a surname obtained by Metellus upon his conquest of the Baleares.

BALECHOU (John Joseph), a celebrated French engraver, born at Arles, in 1719. He died at Avignon, in 1765. This extraordinary artist wrought entirely with the graver, of which he was fully master. The clearness of his strokes, and the depth of color which he produced, are far beyond any production prior to his own. His two large plates from Vernet, the one representing a storm, the other a calm, must ever be considered as astonishing exertions. They are too well known, and too much admired, to need any further eulogium: and were never equalled, until they were perhaps surpassed by our countryman Woollet.

BALEN (Hendrick Van), history and portrait painter, was born at Antwerp, in 1560; was a disciple of Adam Van Oort, and resided at Rome a considerable time. He copied the antiques; and at his return to his own country, the visible improvement of his taste procured him the esteem of the ablest judges. He gave to his figures so much truth, roundness, and correctness of outline, that few of his contemporaries could enter into competition with him. Several fine portraits of his remain. He died in 1632.

BALEN (John Van), painter of history, landscapes, and boys, was born at Antwerp, in 1611; and derived his knowledge of the art, and his fine taste of drawing and design, from his father Hendrick; but, as soon as he had made a competent progress, he travelled to Rome, and lived for several years in that and other cities of Italy. There he acquired a good gusto of design, though he was sometimes incorrect. His particular merit was in his figures of naked boys, cupids, and nymphs bathing or hunting, of which subjects he painted a considerable number; and he procured both praise and riches by his landscapes and histories. The carnations of his figures were clear and fresh; his coloring in general transparent; the airs of his heads were in the manner of Albano.

BALENGARIA, BALENGER, in writers of the

middle age, a kind of vessel of war, but of what particular construction seems not well known. Blount says, that by the stat. 28 Hen. VI. cap. 5, balenger seems to have been a kind of barge.

BALES (Peter), a famous master in the art of penmanship, or fair writing; and one of the first inventors of short hand. He was born in 1547, and is styled, by Anthony Wood, 'a most dexterous person in his profession.' Wood adds, that 'he spent several years in sciences among the Oxonians, particularly in Gloucester-hall; but that study, which he used for a diversion only, proved at length an employment of profit.' He is mentioned in Hollinshed's Chronicle, A. D. 1525; and Mr. Evelyn has celebrated his delicate execution of a piece of writing, containing the Lord's Prayer, the Creed, Decalogue, with two short prayers in Latin, his own name, motto, day of the month, year of the Lord, and reign of the Queen (Elizabeth), to whom he presented it at Hampton Court, all 'written within the circle of a single penny, inchased in a ring and borders of gold; and covered with a crystal, so accurately wrought as to be very plainly legible, to the great admiration of her Majesty, the whole Privy Council, and several ambassadors then at Court!' He was also dexterous in imitating hand-writing, and, about 1586, was employed by Secretary Walsingham in certain political manœuvres. In 1590, we find him at the head of a school, near the Old Bailey, London; in which year he published his Writing Schoolmaster, in three parts: the first teaching swift writing, the second true writing, the third fair writing. In 1595, he had a great trial of skill in Blackfriars with one Daniel Johnson, for a golden pen of £20 value, and won it. He had also the arms of Calligraphy given him, which are Azure, a Pen, Or, as a prize, at a trial of skill in this art among the best penmen in London. In 1597, he republished his Writing Schoolmaster, which was in such high reputation, that no less than eighteen copies of commendatory verses, composed by learned men of that time, were printed before it. Wood says, that he was engaged in Essex's treasons in 1600; but he was only engaged, and very innocently so, in serving the treacherous purposes of one of that Earl's mercenary dependents.

BALESSAN, the eastern name for that species of the Amyris which produces the celebrated balsam of Mecca, the ancient balm of Gilead. This plant grows to the height of fourteen feet, flourishing in a hot climate, and in a stony barren soil. In general it is lower, and Mr. Bruce describes a specimen five feet and a half in height, and five inches across the stem where thickest. The wood is white, light, and of open texture, covered with a smooth bark, reddish or of bluish white, resembling that of a healthy standard cherry-tree, green within, and emitting a very fragrant odor. That of the branches, which are very flexible and resinous, is equally agreeable. The leaves, which are evergreen and scanty, bear some resemblance to those of rue; and the flowers, which are leguminous and of a purplish color, resemble those of the acacia. The fruit consists of small pointed ovoidal berries, containing a yellowish fluid similar to honey, of a bitterish taste, and exhaling a pleasing perfume, approaching the odor of balm.

It has been in modern times maintained that the plants producing the balsam of Mecca are restricted to a plantation of a little more than thirty acres, at Beder Hunein, a station for pilgrims in Arabia, between Mecca and Medina. Yet it cannot be positively affirmed if this be one species, that Abyssinia, the country ascribed to the other, is deprived of it; or that the balm of Gilead grows in Abyssinia exclusively. These are facts which require elucidation from future botanical research. The plantation belongs to a noble family of Arabs, of the tribe Beni K'oreish, from which Mahomet originated, unless the Wahabees, who interrupted the worshipped pilgrimages, have dispossessed them of their inheritance. The balsam is a resinous matter, exuding, like ordinary resin from incisions in the bark, in July, August, and September. It is received in an earthen bottle, and the most productive trees do not yield more than sixty drops a day, we are told. At this time it emits a very strong and pungent odor, and is of a rough, acrid taste, a pale yellow turbid color, and it dissolves in oils readily. Afterwards it acquires a deeper color, as well as greater consistency and clearness, and is not unlike honey in its appearance. It sinks in clear water to the bottom, and, if dropped on hot iron, collects itself into a globule. It is said to be frequently adulterated with honey, wax, and oil. The best kind is called opobalsamum; there are two other kinds, the carpobalsamum, and xylobalsamum; they are obtained from an expression of the fruit of the amyris, the other from a decoction of the twigs.

Prosper Alpinus ascribes many properties to the balsam of Mecca, esteemed the most precious of all that bear the appellation of balsam, and which, in ordinary description, we must consider synonymous with the balm of Gilead; and the modern Arabs, Turks, and Egyptians, entertain great confidence in its efficacy. It is a powerful vulnerary: Mahomet affirmed, that a grove of the trees sprung up from the blood of his own tribe killed in battle, the juice of which cured the wounds of the faithful, however deadly, nay, that it recovered some of them from death itself. It is also taken for complaints in the breast, in fevers, and rheumatism. Hasselquist says, it is useful as a stomachic in doses of three grains. Its repute as an antiseptic is very great; and it is esteemed so effectual an antidote against the plague, that when this distemper makes its appearance, the Egyptians take a certain quantity daily. Its principal use, however, is as a cosmetic by the eastern females of rank: after being kept in a very warm bath, the face and breast are anointed with it, and the same process is continued every third day for a month. Oil of almonds and other cosmetics are then rubbed over the parts, whereby the skin and complexion are beautifully renovated. Lady Mary Wortley Montague relates that she was induced to try the experiment, by which her face became swelled and red for three days, during which she suffered much pain; but her complexion was greatly improved. She adds,

that the ladies of Constantinople, by whom it is used, have the finest bloom. As yielding the virtues of the balm of Gilead, this plant has been celebrated from very remote antiquity. When Joseph was confined by his brethren in a pit, it is said, 'they sat down to eat bread; and they lifted up their eyes and looked, and behold a company of Ishmaelites came from Gilead, with their camels bearing spicery, and balm, and myrrh, going to carry it down to Egypt.' Jeremiah particularly alludes to its virtues; and Josephus states, the queen of Sheba, or Saba, 'who was inquisitive into philosophy, and on that and other accounts was also to be admired,' brought the balm of Gilead as a present to Solomon, on her visit to Jerusalem.

'They say also,' he adds, 'that we possess the root of this balsam, which our country still bears, from that woman's gift.' It appears from the writings of the ancients, nearly contemporary with Josephus, that Judea was generally believed to be possessed of it exclusively. Pliny says, 'To all other odors whatsoever is to be preferred that balsam, which is produced in no other part of the world than the land of Judea, and there in two gardens only, both belonging to the king, one not exceeding twenty acres in size, and the second still smaller.' Strabo partly confirms the above accounts, ascribing it to that country, over or near to which the queen of Sheba reigned. 'Near to this,' he says, 'is the most favored land of the Sabeans, a very great people. Frankincense, myrrh, and cinnamon, grow among them, and in the coast that is about Saba, the balsam also.' Whence Bruce observes, that 'among the myrrh-trees behind Asab, all along the coast to the Straits of Babelmandel, is its native country. It grows to a tree about fourteen feet high spontaneously, and without culture, like the myrrh, the coffee, and frankincense-tree; they are all equally the wood of the country, and occasionally cut down for fuel.' Diodorus Siculus affirms that this balsam grew in a valley of Arabia Felix. Ali Bey says, that there is no balsam made now at Mecca: that, on the contrary, it is very scarce, and is obtained principally in the territory of Medina; as also that it was called belsan, for whose history see our article BADIA.

Galen travelled into Syria and Palestine, purposely to obtain a knowledge of this substance: in 1516 we find the emperor Selim levying a tax of three pounds weight of it annually on Arabia and Egypt; which is said to be levied to this day. Part of the governor of Cairo's appointments include a right to receive a pound of balsam; the like quantity is due to an officer who conducts the caravan of pilgrims to Mecca; and half a pound to the pacha of Damascus.

BALESTRA (Antonio), an excellent historical painter, born at Verona in 1666. At the age of twenty-one he went to Venice, where he continued for three years, under the direction of Ant. Bellucci. He next visited Bologna and Rome, and at the latter became the disciple of Maratti. Under him he exerted himself in designing after Raphael, Corregio, Annibal Caracci, &c. by which he so effectually confirmed his taste, that he obtained the prize of merit in the academy of St. Luke, in 1694, when he was only twenty-eight. From that time his reputation was established, and he was engaged to work for most of the churches and the nobility, and his paintings were universally admired. His style is like that of Maratti; and his works have a certain mixture of the manners of Raphael, Corregio, and Caracci. He died in 1740. In the church of Santa Maria Mater Domini, at Venice, there is one of his most capital performances, representing the nativity of our Saviour. In a chapel belonging to the church of S. Geminiano, in the same city, there is another capital picture of his, representing our Saviour dead, in the arms of the virgin.

BALESTRA, in ichthyology, a name by which Sylvian and others have called the fish more usually known by the name of Capriscus.

BALETCHENCK, a town of Turkey in Asia, on the Kurasir, twenty-one miles from Hazahan, and twenty-seven miles from Katibounou. It consists of 260 houses, and carries on a considerable traffic in horses, cattle, and goats' hair, made into bags.

BALEY (Walter), the son of Henry Baley of Warnwell in Dorsetshire, was born at Portsham, and educated at Winchester. From thence he was sent to Oxford; and, after two years probation, was admitted perpetual fellow of New College, in 1550. Having taken his degree of M. A. he practised physic, and in 1558 was proctor of the university. About this time he obtained the prebend of Wells, which he resigned in 1559. In 1561 he was appointed queen's professor of physic, in 1563 proceeded M. D and afterwards became one of her majesty's physicians in ordinary. He was thought skilful in his profession, and had considerable practice. He died in 1592, aged sixty-three; and was buried in the inner chapel of New College. His works are, 1. A Discourse of three kinds of Pepper in common use, 1588, 8vo. 2. Brief Treatise of the Preservation of the Eye-sight; first printed at Oxford in 1616 and 1645, 8vo. 3. Directions for Health, natural and artificial; with medicines for all diseases of the eyes, 1626, 4to. 4. Explicatio Galeni de potu Convalescentium et Senum, &c. MS. formerly in Lord Aylesbury's library.

BALFROSH, a town of Persia, in the province of Mazendaran, consisting of one principal street, occupied almost wholly by a bazaar, and divided into seventeen wards. Here are eight caravansaries, three of which are devoted to the use of the Russians and Armenians. It is the second town of the province, distant twenty miles west of Fehrabad.

BALGA, a bailiwic, castle, and town of Brandenberg, in East Prussia, opposite Pillau, and twenty-four miles south-west of Konigsberg. The celebrated fortress of Storeda is in this vicinity.

BALGAVIES, a lake of Scotland, in the parish of Aberlemno, in Angusshire, through which the Lunan runs. It furnishes much marl for manuring the adjacent grounds.

BALGILLO, a hill of Scotland, in the parish of Monyfeith in Angusshire, about half a mile

north of Broughty Castle; on which there are still to be seen remains of those fortifications that were erected by the English, under Henry VIII. when they ravaged Dundee and most of the county during the regency of the earl of Arran, in 1548.

BALGONIE, a district in Fifeshire, the property of the Earl of Leven, and from which his eldest son takes his title. It produces excellent coals, and is said to have been wrought for that mineral upwards of 300, some say 500, years ago.

BALGONIE Castle, one of the earl of Leven's seats, in the parish of Markinch, in Fifeshire, a fabric of great antiquity, supposed to have been built in the twelfth century.

BALGUY (John), an eminent divine of the church of England, was born in 1686, at Sheffield, and studied at Cambridge, where he took the degrees of A. B. and M. A. In 1708 he was appointed tutor to Joseph Banks, esq. grandfather to the celebrated Sir Joseph. In 1710 he was ordained a deacon, and in 1711 a priest, when Sir H. Liddel bestowed on him the donative of Lamesly and Tanfield. In this small cure he composed a new sermon every week, 250 of which he afterwards burnt, that his son, Dr. Thomas Balguy, archdeacon of Winchester, might exercise his own genius, instead of trusting to his father's labors. In 1727 he was collated by bishop Hoadly to a prebend in Salisbury, with the right of presenting to four livings; of which he gave one to his son, and another to his brother-in-law, Mr. Robinson. He published 1. Silvius's Examination of certain Doctrines taught by the Reverend Mr. Stebbing, in 1718; 2. Silvius's Letter to the Rev. Dr. Sherlock, in 1719; both anonymously, in vindication of Bp. Hoadly. Mr. Stebbing having replied to these works, Mr. Balguy published, 3. Silvius's Defence of a dialogue between a Papist and a Protestant, in answer to the Rev. Mr. Stebbing; with remarks on that author's manner of writing; 4. A Letter to a Deist concerning the Beauty and Excellence of Moral Virtue, and the support which it receives from the Christian Revelation, in 1726. In this treatise he attacked Lord Shaftesbury's principles, with equal politeness and strength of reasoning. 5. The Foundation of Moral Goodness, or an Enquiry into the Original of our Ideas of Virtue; in two parts, in 1728. 6. Divine Rectitude, or a brief Enquiry concerning the Moral Perfections of the Deity, &c. 7. A second Letter to a Deist. 8. The Law of Truth. 9. Essay on Redemption: and, 10. A Volume of Sermons. He died in 1748, aged sixty-three.

BALI, or Bally, sometimes called also Little Java, one of the Sunda or Sumatran islands, separated from the eastern extremity of Java by the straits of Bali, about five or six leagues wide and of very intricate navigation. Its length according to Sir T. S. Raffles, to whom we are indebted for the greater part of our information respecting these islands, is about eighty miles, and in its breadth nearly equal, the whole surface containing about 6400 square miles. He thinks the population may be estimated at a little more than sixty persons to each square mile, which would give about 400,000 for the number of its inhabitants. The country is mountainous, rising into the interior; the ravines and beds of rivers are deep, and the rivers rapid.

Bali is well cultivated and thickly planted with cocoa-nut and other fruit-trees: the uncultivated parts are crowned with deep forests.

Its productions consist chiefly of rice, maize, yams, and sweet potatoes; rice yields from thirty to forty fold, and the maize often more than a hundred. The Balinese also grow cotton on the dry land, of a superior kind; some opium, nutmegs, dyeing drugs and tobacco, are also objects of culture. On the whole, the Balinese may be considered, we are told, as the most civilised islanders in this archipelago, not excepting even the Javanese. The women manufacture a considerable quantity of cotton cloth for exportation; and are not so much in the field as those of Java: the men manufacture their own fire-arms. On the eastern coast at a place called Pejan a gold mine has been opened. They import chintz and other piece goods, iron, and china ware. Iron, in particular, is in great request. The religion is that of Budh, but not divided into castes; and the priesthood, at least in general, is hereditary. The priests live secluded in separate societies, among the mountains, having lands assigned for the support of themselves and their temples. Justice is administered by distinct civil magistrates, who very intelligently expound the law from written authorities, which is a decided proof that civilisation has had a powerful influence even upon the body of the people.

Bali is governed by seven native and independent princes, each absolute in his own dominion; though their despotism appears to be of a much milder character than among the native governments of Java. A right of private property in the soil is said to be established, and the claims of the government to be confined to a regular tax in kind on the rice. The language presents the singular distinction of one class of words to be used by the privileged orders, and another for the people in general. A sort of feudal service in war is maintained; slavery, we regret to add, though unknown among them, is encouraged by the sale of their prisoners of war to other nations. They are also said to use poisoned arrows in war.

Historically it seems only to be known that this island was visited by Sir Francis Drake in 1597, and that the conversion of the natives to Budhism took place about 1750 years since. The east peak of the island is in lat. 8° 24′ long. 115° 24′ E.

Their language is written in the same character as that of Java, and the Javan is said to be spoken at the courts of their princes, but it is considered as a foreign tongue. The Kawi, the learned language of all these islands, is well understood at Bali. The Balinese are represented as mild and inoffensive in their manners; they readily associate with strangers, and are altogether divested of those bigoted prejudices of caste, nation and religion, with which the people of continental Asia are generally imbued. On the other hand they are said to be the only people of this archipelago who possess either courage or tractability for receiving the regular discipline of European troops. Their food consists princi-

pally of the flesh of hogs and buffaloes, with which ships touching here are readily and reasonably supplied. Nor is the use of spirituous liquors or opium unknown, both of which have been introduced by Europeans. Their houses, like those of Java, are built upon the ground, and not raised upon posts as amongst the Malays. They are generally clothed in cotton of their own manufacture, and of a good fabric. Until they are married, indeed, the females go nearly naked, then the bridegroom wraps a selendang or cloth round the bosom of his chosen fair. There is said to be great general prudence and fidelity in their marriages.

BALIO. See Bailo.

BALIOL, Balliol, or Bailliol (John), king of Scotland. On the death of queen Margaret, in her passage from Norway, being at the head of the English interest in Scotland, he claimed the vacant throne, by virtue of his descent from David earl of Huntingdon, brother to William the Lion, king of Scotland. Robert Bruce opposed Baliol, but having submitted to the arbitration of Edward I it was decided in favor of Baliol, who did homage to him for the kingdom on the 12th of November, 1292. Baliol, however, did not long enjoy the crown, for having remonstrated against the power which Edward assumed over Scotland, he summoned him to his tribunal as a vassal. Irritated at this, Baliol concluded a treaty with France, on which a war with England immediately commenced; and after the battle of Dunbar he surrendered his crown into the hands of the English monarch, who sent him and his son to London to be imprisoned in the Tower. The pope interceded for them, and they were liberated, and committed to his legate in 1297. Baliol retired to his estate in France, where he died in 1314.

Baliol (Edward), the son of John Baliol, king of Scotland. Notwithstanding the manner in which his father was degraded, and obliged to give up his crown, he laid claim to the kingdom of Scotland, and, assisted by France, invaded and recovered it; but it was soon again wrested from him; and dying afterwards without issue the family became extinct.

Baliol, or Balliol (Sir John de), founder of *Baliol* college, in Oxford, was son of Hugh Baliol, of Bernard's castle in the diocese of Durham, and eminent for his power and riches. He was appointed governor of Carlisle in 1248; and when Margaret, daughter of Henry III., was married to Alexander III., king of Scotland, the guardianship of the royal pair, and also of the kingdom, was committed to him and another lord; but in about three years they were charged with abusing their trust, and the English monarch marched towards Scotland, on purpose to punish them. Baliol, however, pacified him by advancing a sum of money. During the wars between Henry III. and the barons he adhered to the king, on which account the barons seized his lands. In 1263 he began the foundation and endowment of Baliol college, which was afterwards completed by his widow. He died in 1269.

BALISTES, in icthyology, a genus of fishes belonging to the order of amphibia nantes. The characters are, the head is flat; eight teeth in each side, the two anterior ones are longest; in the place of gills an aperture immediately above the pectoral fins; the body flat; the scales joined together by the skin, and the belly keeled. There are eight species of this genus:—viz. B. aculeatus, with a triradiated back fin, and the spines of the tail lean upon each other. It is a native of India. 2. B. hispidus with the head-fin uniradiated, and a round black spot in the tail-fin; the body rough, and bristly towards the tail; the spine or horn situated between the eyes; the snout subulated, and instead of a belly-fin a jagged sharp spine. This is a native of Carolina. 3. B. monoceros, whose head-fin consists of but one ray, and the tail-rays carinated. It is called the unicorn-fish by Catesby. This fish has been accounted poisonous. They mostly frequent those seas, amongst the Bahama islands, where the corals are in great plenty. 4. B. papillosus, with a biradiated back-fin, and a papillous body. 5. B. ringens, with a triradiated back-fin; three folds in each side of the head, and the tail-fin forked. It is found at Ascension island. 6. B. tomentosus, whose head-fin is biradiated, and the body of it, towards the hind part, hairy. It is a native of America. 7. B. verrucosus, has a triradiated back-fin, and the tail full of little warts. In the place of a belly-fin this species has a large, thick, warty ray, and twenty-five small reversed sharp spines at the side of the tail, disposed in four rows. It is a native of India. 8. B. vetula, or old wife, with a triradiated back-fin; the belly-fin longitudinal and somewhat carinated; and the tail-fin forked. It is found at Ascension island.

The fishes of this genus are remarkable for their splendid colors. The species mentioned by Linnæus and Gmelin are the following:—monoceros, scriptus β, hispidus, tomentosus, papillosus, verrucosus, biaculeatus, aculeatus, vetula, maculatus, ringens, sinensis, assassi, capriscus, forcipatus, punctatus, Kleinii, curassavicus, and Americanus. Lacepede has described twenty-four species of balistes, in his work on fishes, and which he divides into four sections:—Le baliste mamelonné, le baliste pralin, le baliste verdatre, le baliste Mungo-Parck (Park); le baliste métallique, &c. are new or interesting species described by Lacepede.

BALISTER, *n. s.* Lat. *balista*; Fr. *balesta*, a cross bow.

> A spindle full of raw thread to make a false string for the king's *balister* or cross bow.
>
> *Blount's Tenures*, p. 92.

BALIZE, a river in the peninsula of Yucatan, South America, which falls into the bay of Honduras, in lat. 14° 59′ N. On its banks, and to the extent of 200 miles up the stream, the English cut mahogany, and by the treaty of 1783 a right was guaranteed to British subjects of cutting and carrying away logwood, in the district between this river and the Rio Hondo. Beyond the scene of their operation the Balize is very imperfectly known.

Balize, a sea-port town of Yucatan, South America, is an establishment chiefly composed of English settlers, at the mouth of the above river The houses are mostly built of the wood

of the neighbourhood, amongst which the graceful mahogany frequently furnishes pillars of eight or ten feet high, on which they stand, surrounded by piazzas. The cocoa tree and tamarind, largely interspersed among the buildings, which are also frequently thatched with leaves of the palmetto, give the whole place a very picturesque appearance. But the better sort of houses have of late been shingled. The neighbourhood is low and swampy.

BALK, *n. s. v. a.* & *v. n.* Dutch and Germ. *balk;* Sax. and Wech balc, derived by Skinner from Ital. *valicare*, to pass over. A great beam such as is used in building; a rafter over an outhouse or barn; a ridge of land left unploughed, between the furrows, or at the end of the field; land over which the plough slips without turning it up; figuratively any thing overpassed, untouched. A disappointment; to frustrate, to elude, to omit, or refuse any thing; to heap together; to turn aside, to deal in cross purposes; to speak differently from the intention. The two last meanings are arbitrary, and rest on the authority of Spenser only.

His owne hond than made he ladders three
To climben by the ringes and the stalkes
Unto the tubbes hanging in the *balkes*. *Chaucer.*

Another thing in the grammar schools I see no use of, unless it be to *balk* young lads in learning languages. *Locke.*

Every one has a desire to keep up the vigour of his faculties, and not to *balk* his understanding by what is too hard for it. *Id.*

But one may *balk* his good intent
And take things otherwise than meant. *Prior.*

The prices must have been high; for a people so rich would not *balk* their fancy. *Arbuthnot.*

Balk'd of his prey, the yelling monster flies,
And fills the city with his hideous cries. *Pope.*

The most effectual way to *balk*
Their malice, is to let them talk. *Churchill.*

By grisly Pluto he doth swear,
He rent his clothes, and tore his hair;
And as he runneth here and there,
An acorn cup he greeteth;
Which soon he taketh by the stalk,
About his head he lets it walk,
Nor doth he any creature *balk*,
But lays on all he meeteth.
Drayton's Nimphid.

This was looked for at your hand, and this was *balkt*. *Shakspeare.*

When-as the ape him heard so much to talke
Of labour, that did from his liking *balke*,
He would have slipt the collar handsomely. *Spenser.*

But to occasion him to further talke
To feed her humour with his pleasing style,
Her list in stryfull termes with him to *balke*,
And thus replyde. *Id.*

BALK'ERS. In fishery. Men who stand on a cliff, or high place on the shore, and give a sign to the men in the fishing boats, which way the passage or shoal of herrings is.—*Cowell.*

The pilchards are pursued by a bigger fish, called a plusher, who leapeth above water, and bewrayeth them to the *balker*. *Carew's Sur. of Corn.*

BALKH, a province of Turkistán, bounded on the north by the Amú, on the east by Badakshán, on the south by the Hindu-cush, and on the west by the deserts of Khwárezm, the ancient Bactria. Its present extent is about 250 miles from east to west, and about 110 from north to south. The southern and eastern districts are comparatively cool for the climate, and the valleys towards the Amù are well watered and fertile. The rivers from the Hindú-cush, we learn from Mr. Elphinstone, flow in a direction almost due north, into the Amù: the Koksha, or Badakhshán, is the easternmost; next comes the Ak-serái; and the last and most westerly, the Rehás, loses itself in the sands before it reaches Balkh. Balkh is divided into the districts of Maïmench, Andekhúd, Shilbúrkán, or Shibberghán, Balkh Proper, Kulum, Hazeret Imám, Kundus Khost, Inderáb, and Tálikan. The three first border on the deserts, and are occupied by wandering hordes of Uzbegs and Turcomans.

BALKH, a city of Turkistán, the capital of the above province, stands in lat. 36° 45′ N., long. 65° 20′ E.; it is now in ruins; but is surrounded by 360 fertile villages. The districts Kulum and Hazeret Imàm are barren, but those on the north side of the Hindú-cush, are productive and well peopled. The population of the whole province amounts probably to a million. Balkh was originally built by Kayúmaras, and was the favorite residence of the Persian kings of the Caianian dynasty. It was once esteemed the chief Mussulman city in the north, and called Kubbatu'l islám, (the holy shrine of Islamism). Jengìz Khán took it in 1221, and the last of his family was driven out of it by Tamerlane. In the beginning of the sixteenth century the house of Taïmúr was expelled by the Uzbegs, who have ever since maintained a precarious dominion over these provinces. Kilij Alì Bey was the reigning prince when Mr. Elphinstone visited Afghánistán, nominally acknowledging the authority of the king of Cábul; but in all the internal government entirely independent.

BALKY, a large decayed old town of Hindostan, in the province of Beeder, surrounded by a wall. It is distant fifteen miles W. N. W. of Beeder, and forty-five north-east of Kalbergah. Long. 77° 29′ E., lat. 17° 49′ N.

BALL, a small place in the county of Mayo, 107 miles from Dublin. Here is a celebrated holy well and a round tower; also at Moat in the neighbourhood the ruins of an ancient abbey. In the course of the festival held here it it is said that 300 sheep are sometimes consumed.

BALL (John), a puritan divine, born in Oxfordshire in 1585. He had a curacy of £20 per annum in Staffordshire, and kept a school. He wrote strongly against such as separated from the church, as disapproving of the ceremonies and government, though he was far from being satisfied with these in some respects himself. He died in 1640.

BALL'. Germ. and Dutch *bollen-bol*, to roll, turn, round; any thing round, or roundly, as a cricket ball, a billiard ball, the eye ball, the globe, any thing globular.

'*Bal*, diminutively *Belin*, the sun, or Apollo, of the Celtæ, was called by the ancient Gauls *Abellio*. Whatever was round, and in particular the head, was called by the ancients either *Bel*, or *Bel*, and likewise *Ból* and *Búl*. Among the modern Persians, the head is called *Pole*; and the Hem-

ings do still call the head *Boile*. Πολος is the head or poll; and πολειν is to turn. Βολος likewise signifies a round ball, whence *bowl*, and *bell*, and *ball*, which the Welsh term *bél*. By the Scotch also the head is named *bhél*; whence the English *bill* is derived, signifying the beak of a bird. Figuratively, the Phrygians and Thurians by βαλλην understood a king. Hence also, in the Syriac dialects, βααλ, βηλ, and likewise βωλ, signifies lord, and by this name also the sun; and in some dialects, ΗΛ and ΙΛ, whence Ιλος and Ηλιος, Γηλιος and Βηλιος, and also, in the Celtic diminutive way of expression, Ελενος, Γελενος, and Βελενος, signified the sun; and Ελενη, Γελενη, and Βελενη, the moon. Among the Teutonics, *hol* and *heil* have the same meaning; whence the adjective *holig*, or *heilig*, is derived, and signifies divine or holy; and the aspiration being changed into *s*, the Romans form their *Sol*.' *Baxter.*

For where as God hath shewed unto us certain tokēs of his Godhed, in the heavenly *balles* and circles above, and on the yearthe beneth, in the sea, and in all lyuing creatures on the yearthe, yet hath he wrought in none of thym more wonderfully than in manne. *Udall. Acts*, ch. xvii.

The palme play, where despoiled for the game,
With dased eyes oft we by gleams of love
Have missed the *ball*, and got sight of our dame,
To bait her eyes which kept the leads above.
Earl of Surrey.

Be subject to no sight but mine; invisible
To every eye-*ball* else. *Shakspeare.*

Balls to the stars, and thralls to fortune reign,
Turn'd from themselves, infected with their cage,
Where death is fear'd, and life is held with pain.
Sidney.

Those I have seen play at *ball*, grow extremely earnest who should have the *ball*. *Id.*

What, though in solemn silence, all
Move round the dark terrestrial *ball!*
What tho' nor real voice nor sound
Amid their radiant orbs be found!
In reason's ear they all rejoice,
And utter forth a glorious voice;
For ever singing, as they shine,
'The hand that made us is divine.'
Andrew Marvell.

*** This, with the other sublime and beautiful hymns in the Spectator, were meanly withheld from their genuine author, and falsely ascribed to Addison and Tickell.

Nor arms they wear, nor swords and bucklers wield,
But whirl from leathern strings huge *balls* of lead.
Dryden.

Thus nothing to her genius was deny'd;
But, like a *ball* of fire, the further thrown,
Still with a greater blaze she shone;
And her bright soul broke out on ev'ry side. *Id.*

Like a *ball* of snow tumbling down a hill, he gathered strength as he passed. *Howell.*

Ye gods, what justice rules the *ball?*
Freedom and arts together fall. *Pope.*

'Tis but a *ball* bandied to and fro, and every man carries a racket about him to strike it from himself among the rest of the company. *Swift.*

BALL', *n. s.* Fr. *bal*, from *balare*, low Lat. from βαλλιζειν. To throw or cast about the legs and feet, from βαλλω, to throw. An entertainment of dancing; a fashionable amusement, either public or private; in the former case it is conducted and controlled by a master of the ceremonies; and in the latter it is given by individuals, and is select, because none are admitted but persons specially invited. At public balls, or dancing assemblies, the expenses are defrayed by the company; at private entertainments of this description, the guests are gratuitous participants.

He would make no extraordinary figure at a *ball*; but I can assure the ladies, for their consolation, that he has written better verses on the sex than any man. *Swift.*

Have you not been in pain even at a *ball*, because another has been taken out to dance before you. *Tatler*, No. 253.

There's nothing in the world like etiquette;
In kingly chambers, or imperial halls,
As also at the race and county *balls*. *Byron.*

BALL, among Cornish miners, a tin mine.

BALL, in antiquity, a species of game frequent among the ancients. The Romans had four kinds of pilæ, or balls; the first called trigon or trigonalis, because the three gamesters were placed in a triangle: these caught and tossed the ball, taking great care not to let it fall to the ground. The second and third, called follis, made of leather, blown up like our foot-balls: the largest sort of these were struck with the arm, the smaller with the fist: the former seem to have been distinguished by the appellation, paganica, as being much used in country villages: the fourth was the harpast, a kind of small ball, so called because the gamesters endeavoured to snatch it from each other. Galen has an entire treatise on the exercise of the lesser ball.

BALL, HERO'S, pila Heronis, a kind of artificial fountain, wherein the water is made to spout out of a hollow ball or globe; so named from the inventor, Hero of Alexandria, who has left the description of it in his Spiritalia.

The BALL OF A DOG'S FOOT is the prominent part of the middle of the foot, called by Latin writers of the middle age, pelota.

BALL OF A PENDULUM, the weight at the bottom. In shorter pendulums, it is called the bob.

BALL PUFF, in botany, the English name of the lycoperdon. See LYCOPERDON.

BALL VEIN, in mineralogy, a name sometimes given by miners to a sort of iron ore, common in Suffolk, and wrought to a considerable advantage. It yields not any great quantity of metal, but what it has runs freely in the fire, and is usually found in loose masses, covered with one or more crusts. It contains some sparkling particles; and is usually of a circular form in the perfect masses, thickest in the middle, and gradually thinner as it approaches the sides.

BALL, French, balle, in the military art, comprehends all sorts of bullets for fire-arms, from the cannon to the pistol; also a composition of divers ingredients, generally of the combustible kinds, serving to burn, give light, smoke, stench, or the like; as fire-balls, light-balls, smoke-balls, stink-balls, land-balls, &c. Cannon-balls are made of iron, musket-balls, pistol-balls, &c. are of lead. The experiment has been tried of iron balls for pistols and fusees, but they are justly rejected, not only on account of their lightness,

which prevents them from flying straight, but because they are apt to furrow the barrel of the pistol, &c.

Cannon-balls are distinguished by their respective calibres: thus

For a		pound ball the diameter is	
	42		6·68
	32		6·10
	24		5·54
	18		5·04
	12		4·40
	9		4·00
	6		3·49
	3		2·77
	2		2·42
	1		1·92

A new description of inflammable balls, applicable for besieging a town, and peculiar for its small weight, by which means it may be thrown to a great distance, and takes fire on a very curious plan, has been invented by Captain Thomas Dundas, of the royal navy. It spreads a flame in three distinct openings, which is so strong that the fire extends a full yard in length from the ball itself, and is so powerful that any thing under, over, or near, cannot escape its effects. See the article SHOT.

BALLS, ANCHOR, are made in the same way as the light-balls, hereafter described, and filled with the same composition, only with this addition, that these are made with an iron bar two-thirds of the ball's diameter in length, and three or four inches square. One-half is fixed within the ball, and the other half remains without; the exterior end is made with a grapple hook. Anchor-balls are very useful to set fire to wooden bridges, or any thing made of wood, or even the rigging of ships, &c. for the pile end being the heaviest, flies foremost, and wherever it touches, fastens, and sets all on fire about it.

BALLS, CHAIN, are two balls linked together by a chain of eight or ten inches long, and some have been made with a chain of three or four feet long; they are used to destroy the palisadoes, wooden bridges, and chevaux-de-frizes of a fortification. They are also very destructive to the rigging of a ship.

BALLS, FIRE AND LIGHT; the Greeks had various kinds of fire-balls, or Πυροβολοι λιθοι; one kind called, more particularly, σκυταλια, or σκυταλιδες, made of wood, sometimes a foot, or even a cubit long; their head armed with spikes of iron, beneath which were hemp, pitch, and other combustibles, which being set on fire, they were cast among the enemy. Also composed of mealed powder two, saltpetre one and a half, sulphur one, resin one, turpentine two and a half parts. Sometimes they are made of an iron shell, sometimes a stone, filled and covered with various coats of the above composition, till it conglomerates to a proper size, the last coat being of grained powder. But the best method of making them is to take thick brown paper, make a shell the size of the mortar, and fill it with a composition of an equal quantity of sulphur, pitch, resin, and mealed powder; which being well mixed, and put in warm, will give a clear fire, and burn a considerable time. When they are intended to fire magazines, buildings, &c. the composition must be mealed powder, ten, saltpetre two, sulphur four, and resin one; or rather mealed powder forty-eight, saltpetre thirty-two, sulphur sixteen, resin four, steel or iron filings two, fir tree saw-dust boiled in saltpetre ley, two, birch-wood charcoal one, well rammed into a shell for that purpose, having various holes filled with small barrels, loaded with musket-balls; and lastly, the whole immerged in melted pitch, resin, and turpentine oil.

BALLS, POISONED; the Indian and African nations have always been ingenious at poisoning several sorts of warlike stores and instruments. Their composition is generally mealed powder four, pitch six, resin three, sulphur five, assa-fœtida eight, extract of toads' poison twelve, other poisonous substances twelve, made into balls as above directed. At the commencement of the French revolution, poisoned balls were exhibited to the people, pretended to have been fired by the Austrians, particularly at the siege of Lisle. Major James says he has seen some of this sort. They contained glass, small pieces of iron, &c. and were said to be concocted together by means of a greasy composition, which was impregnated with poisonous matter. In 1792 they were deposited in the archives of Paris.

BALLS, RED-HOT, are heated red-hot upon a large coal fire in a square hole made in the ground, six feet every way, and four or five feet deep. Some make the fire under an iron grate, on which the shell or ball is laid; but the best method is to put the ball into the middle of a clear burning fire, and when red-hot, all the fiery particles must be swept off. Whatever machine you use to throw the red-hot ball out of, it must be elevated according to the distance you intend it shall range, and the charge of powder must be put into a flannel cartridge, and a good wad upon that; then a piece of wood of the exact diameter of the piece, and about three inches and a half thick, to prevent the ball from setting fire to the powder; then place the ball on the edge of the mortar, &c. with an instrument for that purpose, and let it roll of itself against the wood, and instantly fire it off. Should there be a ditch or parallel before such a battery, with soldiers, the wood must not be used, as the blast of powder will break it to pieces, and its own elasticity prevent it from flying far; it would in that case either kill or wound your own people. On this account the wad must be double, the second being damp. If the gun lies at a depression, there must be a wad over the shot, which may be rammed home.

BALLS, SMOKE, are prepared similarly to other fire-balls, and they contain five to one of pitch, resin, and saw-dust. This composition is put into shells made for that purpose, having four holes to let out the smoke. Smoke-balls are thrown out of mortars, and continue to smoke from twenty-five to thirty minutes.

BALLS, STANG, are generally termed bar-shot, and by some called balls of two-heads; they are sometimes made of two half-balls, joined together by a bar of iron from eight to fourteen inches long; they are likewise made of two entire balls; they answer the same purpose as the before-mentioned.

Balls, Stink, are prepared by a composition of mealed powder, resin, saltpetre, pitch, sulphur, rasped horses and asses hoofs, burnt in the fire, assa-fœtida, seraphim gum or ferula, and bug or stinking herbs, made up into balls, as mentioned in light-balls, agreeable to the size of the mortar out of which they are to be thrown.

Balls, in electricity, are two pieces of cork, or pith of elder, nicely turned in a lathe to the size of a small pea, and suspended by fine linen threads; intended as electrometers, and of excellent use to discover small degrees of electricity, to observe the changes of it from positive to negative, and vice versa; and to estimate the force of a shock before the discharge, so that the operator should always be able to tell very nearly before the discharge, by knowing how high he has charged his jars, what the explosion will be.

Balls, in heraldry. See Ballets.

Balls, Crystalline. There are two sorts of fossil bodies mentioned in authors by this name, and distinguished into the echinated, and concave. The first are roundish nodules of stony matter, covered over with points of crystal; and the other flints, and other stones, having cavities in their middles, which are lined, or crusted over with these crystals.

Balls, Horse, among farriers. Horses have a very nice taste; it is therefore proper to give the most disagreeable drugs, in the form of balls, and to make drenches of the more palatable. Balls should be of an oval shape, not exceeding the size of a pullet's egg; and should be dipped in sweet oil to make them slip down the easier. Some horses have a strait gullet, which makes them very averse to a ball being thrust down their throats; such horses had better have drenches given them, or their medicines may be mixed with bran, or in their mashes. See Farriery, *Index*.

Balls, Mercurial, in pharmacy, are an amalgam of mercury and tin, sufficiently solid to be moulded, and to preserve a given form. The method of making them is by adding mercury to melted tin, and pouring the fluid mass into a round hollow mould. These balls are sometimes employed to purify water, in which they are boiled.

Balls of Fire, in meteorology, a kind of luminous bodies, commonly appearing at a great height above the earth, with a splendor surpassing that of the moon; and even occasionally equalling her apparent size. They generally proceed with great velocity in this hemisphere, from north to south, frequently breaking into several smaller ones, sometimes vanishing with a report, and sometimes not. These luminous appearances no doubt constitute one branch of the ancient prodigies, or blazing stars. They sometimes resemble comets, in being attended with a train, but frequently they appear with a round and well defined disk. The first of which we have any accurate account, was observed by Dr. Halley and others at different places, in 1719. From the slight observations they could take of its course among the stars, its perpendicular height was computed at about seventy miles from the surface of the earth. The height of others has also been computed, and found to be various; though in general it is supposed to be beyond the limits assigned to our atmosphere, or where it loses its refractive power. The most remarkable on record appeared on the 18th of August 1783, about nine o'clock in the evening. It was seen to the northward of Shetland, and took a southerly direction for an immense space, being observed as far as the southern provinces of France and Rome. During its course it appears frequently to have changed its shape, sometimes appearing in the form of one ball, sometimes two or more; sometimes with a train, sometimes without one. It passed over Edinburgh nearly in the zenith, and had then the appearance of a well defined round body, extremely luminous, and of a greenish color; the light which it diffused on the ground giving likewise a greenish cast to objects. After passing the zenith, it was attended by a train of considerable length, which continually augmenting, at last obliterated the head entirely, so that it looked like a wedge, flying with the obtuse end foremost. The motion was not apparently swift, by reason of its great height; though in reality it must have moved with great rapidity, on account of the vast space it travelled over in a short time. In other places its appearance was very different. At Greenwich, we are told, that two bright balls parallel to each other led the way, the diameter of which appeared to be about two feet; and were followed by an expulsion of eight others, not elliptical, seeming gradually to mutilate, for the last was small. Between each two balls a luminous serrated body extended, and at the last a blaze issued which terminated in a point. Minute particles dilated from the whole. The balls were tinted first by a pure bright light, then followed by a delicate yellow, mixed with azure, red, green, &c. which, with a coalition of bolder tints, and a reflection from the other balls, gave the most beautiful rotundity and variation of colors that the human eye could be charmed with. The sudden illumination of the atmosphere, and the form and singular transition of this bright luminary, tended much to make it awful: nevertheless the amazing vivid appearance of the different balls, and other rich connective parts not very easy to delineate, gave an effect equal to the rainbow in the zenith of its glory. Dr. Blagden, in a paper on this subject in the seventy-fourth volume of the Philosophical Transactions, has not only given a particular account of this and other meteors of the kind, but added several conjectures relating to the probable causes of them. The opinion which he finally adopts, as the most probable, is, that these fire-balls are great bodies of electric matter moving from one part of the heavens, where to our conception it is superabundant, to another where it is deficient.

Other fireballs have appeared much smaller and nearer the surface of the earth, and sometimes rolling or falling upon it, and exploding with violence; as is the case with those which appear in the time of thunder, and frequently produce mischievous effects. One of these is mentioned by some authors as falling in a serene evening in the island of Jamaica; exploding as soon as it touched the surface of the ground, and making a considerable hole in it. Another is

mentioned by Dr. Priestley, as rolling along the surface of the sea, then rising and striking the top-mast of a man of war, exploding and damaging the ship. In like manner we hear of an electrified cloud at Java, whence, without any thunder storm, there issued a vast number of fireballs which did incredible mischief. All these point out the true origin of balls of this kind, viz. an extensive accumulation of electricity bursting from one part of the atmosphere to another.

This is confirmed by an experiment related at the end of Dr. Priestley's fifth volume on air. He states that a gentleman having charged with a very powerful machine, a jar, which had the wire supporting the nob of a considerable length, and passed through a glass tube, a globe of fire was seen to issue out of it. This globe gradually ascended up the glass tube till it came to the top of the knob, where it settled, turning swiftly on its axis and appearing like a red-hot iron ball of three quarters of an inch diameter. On continuing to turn the machine, it gradually descended into the jar, which it had no sooner done, than there ensued a most violent explosion and flash, the jar being discharged and broken at the same time. We may yet gather from these experiments, that a fireball will be the consequence of a very violent electrification of any substance, provided at the same time that the air be in a very non-conducting state, so that the electricity may not evaporate into it as fast as it is collected; for this would produce only lucid streams and flashes, as in the common experiments with the Leyden phial, and it is probably an inattention to this circumstance which has hitherto prevented the repetition of the experiment above mentioned. The case is the same in thunder-storms, where an excessive accumulation of electric matter always produces fireballs, the most mischievous kind of lightning. A philosopher of the last century, it is well known, met his death from a ball of this description in attempting to draw the electric fluid from the clouds.

Balls of Hair and other substances, in natural history, covered over with a smooth, shining coat, or shell, are mentioned by zoologists, as sometimes found in the stomachs of several animals; they occur most frequently in those quadrupeds which lick the surface of their bodies, in which case they are composed of the hair that has been removed by the tongue; the hair, partly by the operation of licking, and still more by the motion of the stomach, becomes mixed and interwoven in a such a manner, that it resembles the texture of a hat, and when moulded into a round figure, receives a smooth, shining coat, or calculous incrustation. These are the sort of balls usually met with in the cow, sheep, and goat kind, especially the chamois. Every indigestible substance that is swallowed is liable, however, to give origin to these balls, or to form a nucleus for calculous concretion; hence we meet with them composed of the reedy fibres of vegetables, husks of seeds, feathers, and different animal and vegetable exuviæ. When such substances, as stones of fruit, nuts, or inorganic substances, as pebbles, coins, &c. are long detained, and have been covered with a deep incrustation, they constitute the bezoardic stones See Bezoar and Ægagropila.

According to some writers the human subject is liable to the formation of balls in the intestines, in consequence of indigestible matters not being regularly expelled. Cases have been related of death ensuing from accumulations of gooseberry seeds, which had been rolled into a solid ball in the stomach; and Sir Hans Sloane gives the history of a ball found in the intestines of a man, much afflicted with the colic, six inches in circumference, of a spongy substance, and which, when viewed with a microscope, appeared made up of small transparent hairs or fibres, wrought together like the tophus bovinus; in the middle was a common plumb stone, which made, as it were, the core or nucleus upon which the fibrous matter had collected, stratum super stratum. Phil. Trans. No. 309, p. 2387. Sloane, in Phil. Trans. No. 282, p. 1282.

Balls of Silk Worms, or Balls of Spiders, are little cases or cones of silk, wherein those insects deposit their eggs. Spiders are extremely tender in their balls, which they carry about with them, adhering to the papillæ about their anus. Grew mentions balls or bags of a species of silk-worms in Virginia, as big as hen's eggs, and containing each four aurelias.

Balls, Vegetable, in botany a particular plant of a deep green color, of an irregular spherical shape, hollow within, and of different sizes, from an inch and a half to three inches in diameter. It probably belongs to the conserva genus, in the class of mosses; though Dr. Ray has ranged a similar plant under the genus of alcyonium.

BAL'LAD, *v.* & *n.*, Bal'lader, Bal'ladry, Bal'lated, Bal'latry, Bal'lett. Fr. *balade*, Ital. *ballata*. A song. It once signified a solemn and sacred song: the Song of Solomon was called the *ballet of ballets*. It is now generally employed to designate those popular compositions which are sung in simple melodies by all classes of the community; and which, while true to nature, illustrate the manners, customs, and opinions, of the age and country to which they belong. In composition, this word is used as *ballad*-monger, *ballad*-singer, &c.

> At certaine timis gan repaire
> Smalè birdis doune from the aire,
> And on the shipis bounds aboute,
> Ysate and song with voyce full out,
> *Ballades* and layes right ioyously. *Chaucer*

> And also I have ofte assaide
> Roundel, *balades*, and vereloie
> For her, on whom myn hert laie,
> To make. *Gower.*

> Alas! I make but repetition,
> Of what is ordinary and ryalto talk,
> And *balleted*, and would be plaid o' the stage,
> But that vice many times finds such loved friends,
> That preachers are charm'd silent. *Webster*

> And otherwhyles with amourous delights,
> And pleasing toys he would her entertaine;
> Now singing sweetly to surprize her sprights;
> Now making lays of love, and lover's paine,
> Bransles, *ballads*, virelayes, and verses vaine;
> Oft purposes, oft riddles he devys'd,
> And thousands like which flowed in his braine.

With whiche he led her fancy, and entys'd
To take to his new love, and leave her old despys'd.
Spenser's Faerie Queene.

Is there not a *ballad*, boy, of the king and the beggar?
Shakspeare.

The world was very guilty of such *ballads* some three ages since. *Id.*

I had rather be a kitten, and cry mew,
Than one of these same metre *ballad*-mongers. *Id.*

The *ballatry* and the gamut of every municipal fiddle.
Milton.

More solid things do not shew the complexion of the times so well as *ballads* and libels. *Selden.*

No sooner 'gan he raise his tuneful song,
But lads and lasses round about him throng,
Not *ballad*-singer, plac'd above the crowd,
Sings with a note so shrilling, sweet, and loud. *Gay.*

Thither no more the peasant shall repair,
To sweet oblivion of his daily care;
No more the farmer's news, the barber's tale,
No more the woodman's *ballad* shall prevail.
Goldsmith.

Ballads are ordinarily amongst the first efforts of a semi-barbarous people in poetry; and a collection of the best and most popular compositions of this kind will throw great light on the manners of a people in any stage of their civilisation. We can only attempt a slight sketch of the history of this kind of poetry in our own country. 'That our ancestors,' says Mr. Turner, (Anglo-Saxons, p. 287, c. ii.) 'had popular songs on the actions of their great or favorite characters, or on such other subjects as interested the vulgar mind, is proved by many instances, which may be traced in the ancient writers. Alfred says, in his manual, that no one had ever appeared before Aldhelm, so competent in English poetry; none had been able to compose so much, or to sing and recite it so appositely. The king mentions a popular ballad of Aldhelm's, which was in his time, (that is, nearly two centuries afterwards) sung in the streets. Malmsbury adds, that Aldhelm, anxious to instruct his countrymen, then semi-barbarous, and inattentive to their religious duties, took his station on the public bridge, as if a singer by profession, and, by mixing sacred with lighter topics, won their attention, and ameliorated their minds. Bede mentions that in a festive company the harp was sent round, that those might sing who could. It was a book of Saxon poems, says the above historian, which first allured Alfred to learn to read; and the fact that he had his children taught to read the Saxon poems, and that he himself visited the Danish camp as a harper, which, in the reign of his grandson, Anlaf imitated, prove the existence of popular songs which instructed both the child and the rude warrior.

The connexion of these compositions with the foundations of our history is clear. When Malmsbury, after narrating the reign of Athelstan, proceeds to describe his origin from Edward's amour with a shepherd's daughter, he says, The following facts I have taken rather from the songs (cantilenio) worn out by the course of time, than from books composed for the instruction of posterity.

A curious fragment of a ballad, composed by Canute the Great, says Mr. Turner, has survived to us. As this prince was sailing by the abbey, in the isle of Ely, he heard the monks chanting their psalms and anthems, and was so struck with the interesting melody, that he composed a little Saxon ballad on the occasion, which began thus:—

Mere sungen ðe munecheſ binnen Elý,
Tha Gnut ching ſevðeſ bý
Roþeð Gniteſ, noeſ ðe land
And heſe þe ðeſ munecheſ ſang.

Merry sang the monks in Ely
When Canute the king was sailing by;
Row, ye knights, near the land,
And let us hear those monks' song.

In Domesday-book, the Joculator Regis, who was evidently a minstrel, is mentioned as having lands assigned for his maintenance in Gloucestershire, Du Cange, iii. 1543; and in the battle of Hastings, Tarblessen or Taillefer, an esquire in the conqueror's army, obtained permission, as a sort of forlorn hope, to lead the van, and threw himself upon the English spears, singing the popular ballad, Chanson de Roland, Id. iv. 769. Subsequent to the conquest we meet with many genuine English songs: Horn Child: the Squire of lowe Degree: and a Lytele geste of Robin Hoode, have been pointed out as tales without foreign admixture. Richard Cœur de Lion was at once the hero of chivalry and the patron of song: his well known deliverance from captivity in Germany is connected by history with our subject; and the celebrated Scotch novelist has well availed himself of all the romantic truths of the story. Edward IV. incorporated the Minstrels by charter, and they were protected by a corporation under the government of a marshal and two wardens. This charter was renewed by Henry VIII. But by statute 39 Eliz. the profession was visited with the last disgrace, and minstrels were included and made punishable among 'rogues, vagabonds, and sturdy beggars.'

Our older ballads are all in the northern dialect: but singularly enough, on the accession of the Stuarts, we find the whole spirit of these compositions evaporate; and English minstrelsy became extinct. See Percy's Reliques of English Poetry: also Dr. Burney's History of Music: Sir Walter Scott's Minstrelsy of the Scottish Border; and Warton's History.

BALLADUK, a town in the desert of Syria, 140 miles E. N. E. from Damascus.

BALLAGHAN Point, at the south-west entrance of Carlingford Bay, a cape on the east coast of Ireland. Eleven miles S. E. of Newry. Long. 6° 4′ W., lat. 53° 58′ N.

BALLAGHAN, or Ballaghy, a town of Ireland, in the county of Sligo, and province of Connaught. Twenty miles south of Sligo, and 105 from Dublin Long. 9° 50′ W., lat. 53° 48′ N.

BALLAGHNEED, a village of Ireland, in Tyrone, with a good inn, seventy-eight miles from Dublin.

BALLAGHY, three towns in Ireland, viz. 1 in Londonderry, ninety-two miles from Dublin. 2. in the county of Mayo, ninety-seven miles from Dublin. And 3. in Sligo. See Ballaghan.

BALLAMONO, a village in the Isle of Man, near Castletown.

BALLAN, a town of France, in the department of the Sarte, seated on the Orne. Long. 20′ E., lat. 48° 10′ N.

BALLANDEN. See BALLENDEN.

BALLANI, a species of shell-fish, about a finger's length, which abound in the harbour of Ancona, and lodge among the stones. They are much valued at Rome, whither great quantities are sent.

BALLANTRAE, a small post-town and parish of Scotland, in the county of Ayr. The village stands at the mouth of the Stinchar. It carries on a salmon-fishing and some cotton manufactures. Distant twenty-eight miles S. S. W. of Ayr.

BALLAPATTY, a town of the Carnatic, in Hindostan, twelve miles west of Vencatigherry.

BALLAPILLY, a town of Hindostan, in the ceded Balaghaut district of Commim. Long. 78° 38′ E., lat. 15° N.

BAL'LARAG, *v. a.* A ludicrous and low word, purporting to overpower by word or act; to bully; to threaten. It is still used in the north, and pronounced *bullyrag*.

> On Minden's plains, ye meek mounseers;
> Remember Kingsley's grenadiers.
> You vainly thought to *ballyrag* us,
> With your fine squadron off Cape Lagos. *Warton.*

BALLARD (George), one of those occasional geniuses in lower life which shoot up without culture, was born at Campden, in Gloucestershire. Being of a weakly constitution, his parents put him to a habit-maker; and in this situation he mastered the Saxon language. The time he employed in learning it was stolen from sleep, after the labor of the day was over. Lord Chedworth, and the gentlemen of his hunt, who used to spend about a month of the season at Campden, heard of his fame, and generously offered him an annuity of £100, but he modestly told them that £60 was fully sufficient to satisfy both his wants and his wishes. Upon this he retired to Oxford, for the benefit of the Bodleian library; and Dr. Jenner, president, made him one of the eight clerks of Magdalen College. He was afterwards one of the University beadles, but died in June, 1755, rather young; which is supposed to have been owing to too intense application. He left large collections behind him, but published only Memoirs of British Ladies, who have been celebrated for their Writings or Skill in the learned Languages, Arts, and Sciences, 1752. 4to. He drew up an account of Campden church, which was read at the Society of Antiquaries, November 21, 1771.

BALLARD, CAPE, a cape of Newfoundland. Long. 52° 26′ W., lat. 46° 55′ N.

BALLARD'S-POINT, a cape on the west coast of Ireland, in the county of Clare. Longitude 9° 32′ W., lat. 52° 42′ N.

BALLARE, in middle-age authors, to dance.

BALLARINA, in ornithology, a name under which Olina describes the white-wagtail, motacilla alba.

BALLAS, a trading place on the left bank of the Nile, Upper Egypt, where a great quantity of earthen pots of a peculiar kind are manufactured. Ten miles south of Dendera.

BALLASSA-GYARMATH, a considerable market-town and castle of Hungary, in the county of Neograd. It suffered dreadfully by a conflagration in 1800; when no less than 568 houses were destroyed, and only fifty, with the town-house, left standing.

BALLASEDERE, a town of Ireland, in the county of Sligo, 100 miles from Dublin, near a water-fall.

BAL'LAST, *v.* & *n.* } Ang.-Sax. hlæstan,
BAL'LASTURY. } be-hlæstan, to lade, load, or fraught a ship. Past participle hlæsted, be-hlæsted, loaded or laden. Dut. and Ger ballast. It is applied to that lading or loading which is used to steady a vessel in the water, or to steady any thing in its motion or action. See NAVIGATION, for the nautical illustration of the term.

> 'Mongst friends?
> If brothers:—Would it had been so, that they
> Had been my father's sons! then had my prize
> Been less; and so more equal *ballasting*
> To thee, Posthumus. *Shakspeare.*

> There must be middle counsellors to keep things steady; for, without that ***ballast***, the ship will roll too much. *Bacon.*

> While thus to *ballast* love I thought,
> And so more steadily t' have gone,
> I saw I had love's pinnace overfraught. *Donne.*

> Now you have given me virtue for my guide,
> And with true honour *ballasted* my pride.
> *Dryden.*

> Why should he sink where nothing seem'd to press?
> His lading little, and his *ballast* less. *Swift.*

> Those men have not *ballast* enough of humility and fear. *Hammond's Sermons.*

BALLAST, in navigation. The principal object is to make a vessel sink to a proper depth in the water, that she may steadily carry a sufficient quantity of sail. There is often great difference in the proportion of ballast required to prepare ships of equal burthen for a voyage; the quantity being more or less according to the sharpness or flatness of the ship's bottom, which seamen call the floor.

The properly ballasting of a ship is amongst the most important duties of the skilful mariner; for, although it is known that ships in general will not carry a sufficient quantity of sail, till they are laden so deep that the surface of the water will nearly glance on the extreme breadth amidships, yet there is more than this general knowledge required; since, if she has a great weight of heavy ballast, as lead, iron, &c. in the bottom, it will place the centre of gravity too low in the hold; and, although this will enable her to carry a great sail, she will nevertheless sail heavily, and run, in rolling, the risk of being dismasted.

The ballast, therefore, should be so disposed that she may be duly poised, and maintain a proper equilibrium on the water, so as neither to be too stiff nor too crank: in the first, although the ship may be fitted to carry a great sail, her velocity will not be proportionably increased; whilst her masts are endangered by sudden jerks and laboring: and, in the last, she

will be incapable of carrying sail without the risk of upsetting. The former is occasioned by disposing too great a quantity of heavy ballast in the bottom, which brings the centre of gravity near the keel; and, that being the centre about which the vibrations are made, the lower it is placed, the more violent will be the motion of rolling. Crankness, on the other hand, is occasioned by disposing the ship's lading so as to raise the centre of gravity too high, which endangers the mast in carrying sail when it blows hard: for when the masts lose their perpendicular, they strain in the nature of a lever on the shrouds, which increases as the sine of their obliquity.

As a general principle, it may, therefore, be observed, that ballast should be placed round and near the centre of gravity of the ship, because it will prevent the pitching being so violent as it would be if it were carried much fore or aft of that point. When a vessel is passing over a wave, she will be at one time supported below the centre of gravity; and immediately after, her head will incline downwards, or, as it is termed, she will pitch; when it is evident, that the nearer the weight is to the point over which the vessel is supported, the less violent will the motion be. But this rule stands in need of frequent modifications: for which reason, a large quantity of shifting ballast is allowed in the Royal navy. Indeed, throughout the whole practice, as we are finding a remedy for one fault, we are in danger of running into another; and much of the final distribution of ballast depends upon knowing well the peculiarities of the vessel, and observing experimentally, how different winds and calms affect her.

The following was, until lately, the Ballast allowed to our Men of War:

Guns.	Tonnage.	Iron Tons.	Shingle Tons.	Guns.	Tonnage.	Iron Tons.	Shingle Tons.
110	2290	180	370	36	870	65	160
100	2090	180	370	32	700	65	140
98	2110	160	350	28	600	60	100
90	1870	160	350	24	500	50	80
80	1620	140	300	22	450	50	70
74	1700	80	270	20	400	50	60
64	1370	70	260	Sloop.	300	50	40
50	1100	65	170	Brig.	160	30	15
44	900	65	160	Cutter.		20	Seldom
38	930	70	170	Sloop.		15	any.

The general practice then was, first, to stow he iron ballast fore and aft, from bulkhead to ulkhead, in the main hold, next to fir cants, ailed on the limber strakes, on each side of the elson, five or more inches clear of the limber oards; and winged up three or four pigs above he floor-heads in the midships, or bearing part f the ship, with two tiers of pigs in the wake f the main hatchway, &c. The shingle ballast as spread and levelled over the iron ballast, on hich was stowed the lower tier of water-casks, ith the bungs up, and the bilge clear of the des. The midship tiers were first laid, and he casks sunk about one quarter of their diaeter into the shingle; the sides being filled in ith small casks, as half-hogsheads, &c.

Since the introduction of iron tanks, shingle allast has been altogether laid aside, and iron allast only employed, the present proportion which, according to the practice of the navy, as follows:—

able of the proportion of Iron Ballast at present allowed in the navy, in proportion to their tonnage.

To all three-deckers, $\frac{1}{8}$th of computed tonge.
To two-deckers and oak frigates $\frac{1}{10}$th ditto.
To fir frigates $\frac{3}{20}$ths of ditto.
To 22-gun ships and sloops, $\frac{1}{5}$th ditto.
To brigs, sloops, &c. $\frac{1}{4}$th ditto.

Smaller vessels are not submitted to these rules; but are ballasted as circumstances may require, according to the judgment of their officers. In ships of the line, sixteen ton of the above, called shingle ballast, is moveable as circumstances require, and half that quantity to frigates.

Additional ballast, to the amount of one-third, and even one-half, of the original quantity is sometimes, however, demanded: and the table only exhibits the official and ordinary allowance.

In the merchant-service, the stowage consists, besides the other ballast, of casks, cases, bales, boxes, &c. all carefully wedged off from the bottom, sides, pump-well, &c. and great attention is paid that the most weighty materials are stowed nearest to the centre of gravity, or bearing of the ship; and higher or lower in the hold agreeably to the form of the vessel. A full low-built vessel requires them to be stowed high up, that the centre of gravity may be raised, to keep her from rolling away her masts, and from being too stiff and laborsome; as, on the contrary, a narrow high-built vessel requires the most weighty materials to be stowed low down, nearest the kelson, that the centre of gravity may be kept low, to enable her to carry more sail. To yachts and other small vessels, both in the navy and merchant-service, the ballast is sometimes lead, worked between the timbers.

By the 19 Geo. II. it is enacted, that if any

master or owner, or any person acting as master of any ship or other vessel whatsoever, shall cast, throw out, or unlade, or if there shall be thrown out, &c. of any vessel, being within any haven, port, road, channel, or navigable river within England, any ballast, rubbish, gravel, earth, stone, wreck, or filth, but only upon the land, where the tide and water never flows or runs; any one or more justices for the county or place where, or near which the offence shall be committed, upon the information thereof, shall summon or issue his warrant for bringing the master or owner of the vessel, or other person acting as such, before him; and, upon appearance or default, shall proceed to examine the matter, and upon proof made thereof, either by confession of the party, or on view of the justice, or upon the oath of one or more creditable witnesses, he shall convict the said master, &c. and fine him at his discretion for every such offence, any sum not exceeding £5, nor under 50s. &c.; and for want of sufficient distress, the justice is to commit the master, or person acting as such, and convicted as aforesaid, to the common jail or house of correction, for the space of two months, or until payment of the penalties.

Besides the above general act, there are the 6 Geo. II. c. 29, and the 32 Geo. II. which regulate the ballasting of merchant-vessels in the river Thames, placing it under the direction of the corporation of the Trinity-house.

To trench the ballast, denotes, to divide the ballast into two several parts or more, in the ship's hold, commonly done to find a leak in the bottom of a ship, or to undock her.

Shooting of the ballast is when it runs over from the one side to the other. Hence, it is that corn, and all kinds of grain, is dangerous lading, for that is apt to shoot. To prevent which, they make poucles; that is, bulkheads of boards, to secure it from moving about.

BALLATAR Crag, a rocky hill in Aberdeenshire, whose tremendous impending rocks seem to threaten the astonished traveller with instant destruction.

BALLATIONES, in middle age writers, dancings.

BALLATOONS, large heavy luggage-boats, used for carrying wood by the river from Astrakhan and the Caspian Sea from Moscow. They will carry from 100 to 200 tons, and have from 100 to 120 men employed to row and tow them along.

BALLANTYNE (John), was a native of Kelso, in Roxburgshire; and at an early age entered into business as a printer. He, with his brother, distinguished himself by the great improvement of the art, evinced in the extensive publications which have of late years issued from their press. He was at one time a proprietor of the Kelso Mail; and subsequently ushered into the world the publications known as the Waverly novels. He was possessed of sufficient literary talents to be thought at one time to be their author. He died in 1821.

BALLEBHODAN, the original name of the parish of Ardchattan, Argyleshire.

BALLENA, Punta de la, a point of land on the east coast of the island of Margaritta: another in Chili, on the coast of the province of Quillota: another in the kingdom of Quito, and on the shore of the South Sea.

Ballena, a river of Florida, which falls into the Atlantic.

BALLENDEN (Sir John), a Scottish poet, in the reign of James V., descended from an ancient family in that kingdom. His father, Mr. Thomas Ballenden, of Auchinoul, was director to the chancery in 1540, and clerk register in 1541. From one of his poems we learn, that in his youth he had some employment at the court to king James V. and that he was in great favor with that prince. Having taken orders, and been created D.D. at the Sorbonne, he was made canon of Ross, archdeacon of Moray, and clerk register; but was afterwards deprived of that employment by the factions of the times. However, in the reign of Mary, he recovered that office, and was one of the lords of session. Being a zealous papist, he, in conjunction with Dr. Laing, was extremely assiduous in retarding the progress of the reformation; till at last, finding the opposition too powerful, he quitted Scotland, and went to Rome, where he died in 1550. He is generally esteemed one of the best Scottish poets of that age. His works are, 1. The History and Chronicles of Scotland of Hector Boies (Boethius), translated by Mr. John Ballenden, Edinb. 1536. 2. Cosmography to the History of Scotland, with a Poetical Proem. 3. A Description of Albany. 4. Translation of Boethius's Description of Scotland. 5. Epistles to king James V.—Bale says he had seen these letters. 6. Several poems in Carmichael's Collection. 7. Virtue and Vyce, a poem addressed to king James V.

BALLENGARY, a town of Ireland, in the county of Kerry, on the mouth of the Shannon, near Ardfert.

BALLENSTEDT, an ancient county and castle in the principality of Anhalt-Bernburg, Germany, on the confines of Quedlingburg. It is the ordinary residence of the prince of Anhalt, and contains a riding-house, a theatre, and beautiful gardens. At the foot of a hill on the rivulet of Getel. Population 2500. Eighteen miles south-west of Bernburg, twenty-seven north-east of Nordhausen. Long. 11° 25′ E., lat. 51° 45′ N.

BALLERINI (Peter and Jerome), two brothers, Italian priests, natives of Verona. Peter was born in 1698, and Jerome in 1702. They wrote in conjunction, several learned and ingenious poems, and published various editions of ecclesiastical authors.

BALLEROY, a town and castle of France, in Normandy, with 1180 inhabitants, and several iron mines, and forges. It stands on the Drome, and is the head of a canton, in the department of Calvados, arrondissement of Bayeux. Seven miles S.S.W. of Bayeux, eighteen south of Caen.

BALLERUS, in ichthyology, a species of fresh water fish of the leather mouthed kind, which appears to be the same with the carassius or carassi tertium genus.

Ballerus is also a name given by Aristotle to that species of cyprinus called blicca, and pleysta, and pallerus, by modern writers.

BALLET, a dramatic fable represented by action, music and dancing. The origin of the ballet is to be traced to the meretricious taste of the Italian courts, and succeeded the more dangerous but more manly amusement of the tournament. The interview between our Henry VIII. and Francis I. of France, in the field of the cloth of gold, presents us with an early specimen of these entertainments. In the next century they reached the summit of their glory in the splendid pomps of the courts of Tuscany and Lorraine. The genius of Ben Jonson, and even that of Shakspeare, was matured amidst the scenery connected with the Italian ballet: but it found its most zealous patron in Louis XIV.; and probably the most magnificent ballet ever performed, was that which this prince commanded and bore a part in, in the year 1664. In honor of this memorable fête, the name of the Carousel has been given to the spot of its celebration; and the theatres of England, France, and Italy, have been always striving since in amicable warfare, to sustain the public partiality for these spectacles.

BALLETS, or BALLS, in heraldry, make a frequent bearing in coats of arms, though never so called; for, according to their several colors they have different names; as besants, when the color is or; plates when argent; hurts when azure; torteaux when gules; pomies when vert; pellets or agresses when sable; golpes when purple; orenges when tanne; and guzes when sanguine.

BAL'LETTE, *n. s.* Fr. *ballette*. A dance in which some history is represented.

BALLEXARD (N.), a citizen of Geneva, born in 1726. He wrote a treatise on the physical education of children, which gained the prize from a society in Holland; and a dissertation on the question, what are the principal causes of the deaths of children? He died at Geneva in 1774.

BALLI (Joseph), a scholastic divine, born at Palermo in Sicily. He was a canon of Bari, in the kingdom of Naples; and author of De Fæcunditate Dei, and De Morte Corporum Naturalium. He died at Padua in 1640.

BALLIACE, in ancient geography, a town of Illyria, in the vicinity of Apollonia.

BAL'LIAGE, a duty payable to the city of London, for the goods and merchandise of aliens, according to the charter 16 Car. II.

BALLIANI (John Baptist), a native of Genoa, born in 1586. He rose to be a member of the senate, and wrote a treatise on the Natural Motion of Heavy Bodies, 1646. He died in 1666.

BAL'LIARDS, *n. s.* From ball and yard, or stick to push it with. A play at which a ball is driven by the end of a stick; now corruptly called billiards, Dr. Johnson says; but *billiards* is not a corruption, being the Fr. *billard*, from *bille*, the term for the ball used in playing.

> With dice, with cards, with *balliards* far unfit,
> With shuttle-cocks misseeming manly wit.
>
> *Spenser.*

> CLEO. Let it alone; let us to *billiards*;
> Come, Charmian.
>
> *Shakspeare. Antony and Cleopatra.*

BALLIBAY, a market-town of Ireland, in the county of Cavan, fifty-three miles from Dublin.

BALLICORA, a borough town of Ireland, in the county of Cork.

BALLIMORE, a town of Ireland, in the county of Westmeath. It was taken in 1691 by General Gingle; and burnt by the military, in the rebellion of 1798. Distant from Athlone ten miles north, and fifty from Dublin.

BALLIN (Claude), a celebrated French artist, born in 1615. His father was a goldsmith, and under him he learned that business. When about nineteen years of age, he displayed uncommon genius, by making four silver basins, on which were represented the four ages of the world. These were purchased by Cardinal Richelieu, and he was employed to make four vases, after the antique, to match them. He afterwards executed handsome pieces for Louis XIV. and after the death of Varin, he succeeded as director of the mint, for casts and medals. He died in 1678.

BALLINA, or BELLEEK, a town of Ireland, in the county of Mayo; fourteen miles north of Castlebar, and 120 from Dublin. It has a considerable salmon fishery; and in 1798 was taken by the French troops who landed in Ireland under General Humbert.

BALLINACARGY, a town of Ireland, in West Meath, about forty-six miles from Dublin.

BALLINACHORA, a town of Ireland, near Middletown, in Cork.

BALLINACOURTY, POINT, a cape on the south coast of Ireland, in the county of Waterford, on the north side of Dungarvan Bay. Distant four miles east of Dungarvan.

BALLINAGAR, a town of Ireland, in King's county, Leinster, forty-one miles from Dublin.

BALLINAKIL, a market town of Ireland, in Queen's county; a borough previously to the Union. Here are woollen manufactures, and the ruins of a castle, fourteen miles west of Carlow, fifty-eight from Dublin.

BALLINAKILL HARBOUR is on the west coast of Ireland. Forty miles north-west of Galway. Long. 9° 58′ W., lat. 53° 34′ N.

BALLINALACK, a town in West Meath, Ireland, about forty-eight miles from Dublin.

BALLINAMORE, a town of Ireland, in the county of Galway, eighty-four miles from Dublin.

BALLINANAGHT, a town of Ireland, in the county of Cavan, fifty-four miles from Dublin.

BALLINASLOE, a town of Ireland, in the county of Roscommon, seventy-two miles from Dublin. It is noted for its great fairs of cattle, wool, &c. Of sheep there will sometimes 80,000, or 90,000, be seen together here.

BALLINAVAR, a town of Ireland, in Cork.

BALLINDAGGIN, a town of Ireland, in the county of Mayo, nearly 100 miles from Dublin.

BALLINEKIL, a borough town of Ireland, in Queen's county.

BALLINGARRY, a town of Ireland, in the county of Limerick, 122 miles from Dublin.

BALLINROBE, a town of Ireland, in Mayo, where the assizes are sometimes held. It is 112 miles from Dublin. Long. 9° 10′ W., lat. 53° 40′ N.

BALLINTOGHER, a town of Sligo, Ireland.

BALLINTOY, a town of Ireland, on the coast of Antrim. It produces coals. It has a tolerable good harbour, which has been improved by a parliamentary grant. A short distance to the eastward is the small island of Carrick-a-rede, separated from the land by a chasm of sixty feet, of a frightful depth, which is passed by means of two cables stretched across.

BALLINTRY, a village and parish of Ireland, on the coast of Antrim. Several ancient fortifications are within its precincts, and there is a cromlech near the village. Other antiquities are also found here. It is twenty miles north of Ballymena, and 150 from Dublin.

BALLISTA, Lat. from *βαλλειν*, to shoot, a machine used by the ancients for shooting darts; it resembled in some measure our cross bow. Vegetius informs us, that the ballista discharged darts with such rapidity and violence, that nothing could resist their force: and Athenæus adds, that Agistratus made one of little more than two feet in length, which shot darts 500 paces. See ARTILLERY.

BALLISTA, in practical geometry, the geometrical cross, called also Jacob's staff. See CROSS STAFF.

BALLISTA, or OS BALLISTÆ, is a name given by some anatomists to the first bone of the tarsus, otherwise called talus and astragalus.

BALLISTARII, or BALLISTRARII, in antiquity, slingers or soldiers who fought with the ballistæ. There are two kinds of ballistarii; the one, called also manuballistarii, or manuballistæ, cast stones and other missive weapons, with the hand. The others, called also carroballistarii, or carroballistæ, made use of a machine. The ballistarii were scarcely heard of before the age of Constantine.

BALLISTARIUS is also used, in writers of the middle age, for a cross bowman, or arbaletier.

BAL'LISTER. See BALLUSTER.

BALLISTEUM, or BALLISTRÆA; from *βαλλω*, to toss, to throw, or to shoot; in antiquity, a military song or dance used on occasions of victory. Vopiscus has preserved the ballisteum sung in honor of Aurelian, who, in the Sarmatian war, was said to have killed forty-eight of the enemy in one day with his own hand. The ballistea were a kind of popular ballads, composed by poets of the lower class, without much regard to the laws of metre.

BALLISTICA, or BALLISTICS the art of throwing heavy bodies. F. Mersennus has published a treatise on the projection of bodies, under this title.

BALLIUM, old law Latin, bail.

BALLIUM, in archæologia, the court of a fortified castle. The outer ballium was immediately within the gates, separated by a wall from the inner ballium, which contained the apartments for the garrison and the keeper. St. Peter, in the Bailey at Oxford, stands in the outer ballium of the castle. The Old Bailey and New Bailey in London were in similar positions in regard to the walls of that city; and hence are their names.

BALLIVUS. See BAILIFF.

BALLOCH, a lake of Perthshire, in the parish of Muthil, about half a mile in circumference.

BAL'LON, } Fr. *balon*, a little ball or pack;
BAL'LOON. } also a foot-ball. Dut. *balloen*, Germ. balluyn, Span. *balon*, Ital. *ballone*. A name given to a certain game played with a ball filled with wind.

> Many other sports and recreations there be much in use, as foot-ball, *ballowne*, quintan, &c and many such, which are the common recreations of the country folks. *Burton's Anatomy of Melancholy.*

> SIR PET. Faith, I was so entertained in the progress with one count Epernoun, a Welsh knight: we had a match at *baloon*, too, with my lord Witcham, for five crowns.——O, sweet lady, 'tis a strong game with the arm. *Eastward Hoe.*

BALLON, or BALLONE, an ancient castle, seated on the sea-coast, in the parish of Tarbat, in Ross-shire; which exhibits a monument of the taste and grandeur of former ages.

BALLON, a town in the province of Maine, France, on the Orne, with 3560 inhabitants. It is the chief place of a canton in the department of the Sarthe, arrondissement of Le Mans; and has manufactures of stamine and other linen cloths. Ten miles north-east of Le Mans, sixteen south of Alençon. Also a town of France, in the department of the Lower Charente, arrondissement of Rochefort; nine miles south-east of La Rochelle.

BAL'LOON, *n. s.* In chemistry, a large globular glass flask, with a short neck, generally used as a receiver in distillations.

In architecture, a ball or globe placed on the top of a pillar.

In fire-works, a ball of pasteboard stuffed with combustible matter, which, when fired, mounts to a considerable height in the air, and then bursts into bright sparks resembling stars.

In aerology, a hollow vessel of silk, which is filled with inflammable air, and ascends with considerable weight annexed to it, into the atmosphere. Though of modern introduction, by the following citation it looks as if the existence of such a machine had been known 150 years since: 'Like *balloones* full of wind, the more they are pressed down, the higher they rise.'—*Hewyt' Sermons* (1658) p. 115. See AERONAUTICS.

BALLOON, in a general sense, signifies any spherical hollow body, of whatever matter it be composed, or for whatever purposes it be designed.

BALLOON, in the French paper trade, is a term for a quantity of paper, containing twenty four reams.

BALLOON likewise denotes a kind of game something resembling tennis. The ballon is played in the open field, with a great round ball of double leather blown up with wind, and thus driven to and fro with the strength of a man's arm, fortified with a brace of wood.

BALLOON, or BALLOEN, is particularly used among voyagers for the state barges of Siam. These balloons are a kind of brigantines, managed with oars, of very odd figures, as serpents, sea-horses, &c.; but, by their sharpness and number of oars, of incredible swiftness. They are said

to be made of a single piece of timber, of uncommon length; they are raised high, and much decorated with carving at head and stern: some are gilt over, and carry 120 or 150 rowers on each side. The oars are either plated over with silver, gilt, or radiated with gold; and the dome or canopy in the middle, where the company is placed, is ornamented with some rich stuff, and furnished with a ballustrade of ivory, or other costly matter, enriched with gilding. The edges of the balloon just touch the water, but the extremities rise with a sweep to a great height. Some are adorned with a variety of figures, made of pieces of mother of pearl inlaid: the richer sort, instead of a dome, carry a kind of steeple in the middle: so that, considering the slenderness of the vessel, which is usually 100 or 120 feet long, and scarcely six broad, the height of two ends, and of the steeple, with the load of decorations, it is a kind of miracle that they are not overset.

Balloon, or Ballot, in the French glass trade, signifies a certain quantity of glass plates, smaller or greater according to their quality. The balloon of white glass contains twenty-five bundles, of six plates per bundle; but the balloon of colored glass is only twelve bundles and a half, and of three plates to a bundle.

Balloon, Air. See Aeronautics, &c.

BAL'LOT, *v.* & *n.* } Fr. *ballotter*, Ital. *ballotare*, from Gr. *βαλλω*, from *ball*, Skinner. A particular mode of election. This is managed by putting little balls or tickets of different colors, black and white, privately into a box, which has two compartments; by counting the balls it is known what is the result of the poll, without any discovery of the respective voters.

Ballota'nt,
Ballot'ation,
Ballot'in.

The greatest of the parliament men hated this design of rotation and *balloting*, as being against their power. *Wood's Atheniæ Oxoniensis.*

Whereupon eight *ballotins*, or pages, take eight of the boxes, and go four on the one side, and four on the other side of the house; and every magistrate and senator holds up a little pellet of linen as the box passes, between his finger and his thumb, that they may see he has but one, and then puts it into the same. *Harrington's Oceana.*

No competition arriving to a sufficient number of balls, they fell to ballot some others. *Wotton.*

The election of the duke of Venice is intricate and curious, consisting of ten several *ballotations*. *Id.*

Giving their votes by *ballotting*, they lie under no awe. *Swift.*

BALLOTA, White Horehound: in botany; a genus of the gymnospermia order, and didynamia class of plants; ranking, in the natural method, under the forty-second order, verticillatæ. The calyx has five teeth, with ten striæ; and the upper lip of the corolla is crenated. It is a common weed growing on the sides of banks in most parts of England, as also in walks near towns and villages in Scotland; so is seldom admitted into gardens. The flowers are in whorls, upon branched peduncles, and lean on one side of the stalk; they are commonly of a dull red color, but sometimes white. It was formerly used in hysteric cases, but is now fallen into disuse. The Swedes reckon it an almost universal remedy in the diseases of their cattle. Horses, cows, sheep, and goats, refuse to eat it.

BALLOTADE. See Balotade.

BALLRIENAN, a pleasant peninsula of Ireland, in the county of Louth; in which there are relics of a Druid's Grove; supposed to have been the chief seat of the Arch-Druid.

BALL's Bay, a bay on the east coast of Norfolk island, in the South Pacific.

Balls, a river of West Greenland, which runs into the sea, in long. 50° 10′ W., lat. 64° 30′ N.

Ball's Pyramid, a small island in the South Pacific, discovered by lieutenant Ball in 1788. Long. 159° E., lat. 31° 35′ S.

BALLSTOWN, a thriving town of the state of New York, situated in Saratoga county, thirty miles north of Albany.

Also a town of North America, in Lincoln county, district of Maine, 195 miles north-east of Boston.

BALLUNTEE, a town of Hindostan, in Orissa, thirteen miles south-east of Cuttack.

BALLUSTER. See Baluster.

BALLUSTRADE. See Balustrade, and Architecture, Index.

BALLY, a small island in the Eastern seas, separated from the west coast of Bachian by a channel about five miles wide. Lat. 0° 30′ S.

Bally, a large town on the east coast of the island of Lombhook, about fifteen miles from the entrance of the strait of Alass. The inhabitants trade principally for rice with the Dutch settlements. Long. 116° 28′ E., lat 8° 31′ S.

Bally, a Gaelic word, analagous to Bal, which makes part of the names of above 100 places, mostly small towns, or villages, in Ireland; of which we can only notice a few of the principal. The word seems to be a corruption of the term Ballibetagh, anciently used to express a town land able to maintain hospitality.

Ballycastle, a sea-port of Antrim, about thirty miles north of Carrickfergus, and 113 from Dublin: noted for its chalybeate spring and collieries.

Ballyconnel, a town of Cavan, in Ulster, sixty-seven miles from Dublin, and eleven north-east of Cavan.

Ballycotton Bay, a bay on the north-west coast of Ballycotton island.

Ballycotton Island, an island of St. George's channel, on the south-west coast of Ireland, four miles off Cloyne. Long. 7° 59′ W., lat. 51° 50′ N. It is a great resort of sea-fowl, and porpoises frequently come ashore here.

Ballydovilin Bay, a bay on the south-west coast of Ireland. Long. 9° 32′ W., lat. 51° 27′ N.

Ballyela Bay, a bay on the west coast of Ireland, 128 miles east of the south Arran islands.

Ballygamboon, in Kerry, Munster; noted for producing great quantities of cyder.

Ballygilly Head, a cape on the east coast of Ireland.

Ballyhays, a market town of Ireland, county of Cavan, fifty-seven miles from Dublin, and once a considerable place.

BALLYHOLM BAY, on the coast of Down, between Carrickfergus and Copland islands.

BALLYHOOLY, in Cork, seated on the Blackwater, in a woody country; 111 miles from Dublin.

BALLYLESS BAY, a harbour on the north-west coast of Ireland, due west from Sligo Bay, and east from Broad-haven. Dunsinehead is its eastern limit.

BALLYMAHON, a town in Longford, fifty-two miles from Dublin. Long. 7° 56′ W., lat. 52° 31′ N.

BALLYMENA, a market town of Antrim, on the river Maine, Ireland. It has a town-house, in which the quarter-sessions are held; and a linen manufacture is carried on here. Twenty miles north-west of Belfast, and ninety-three north of Dublin.

BALLYNAHINCH, a market town of Down, in Ireland, seventy-six miles from Dublin. In its neighbourhood is a chalybeate spring. Here, in 1798, the rebels were defeated after a bloody engagement on Lord Moira's estate, and the greater part of the town was at that time destroyed.

BALLYQUINTON POINT, a cape of Ireland, seven miles east of Down-patrick.

BALLYRAGHAN BAY, a bay on the west coast of Ireland, in the north part of the county of Clare. Long. 9° 6′ W., lat. 53° 7′ N.

BALLYSHANNON, a town of Ireland, in the county of Donegal, situated on a bay at the mouth of a river flowing from Lough Erne, which is here crossed by a bridge of fourteen arches. Here are two fisheries of eels and salmon. Fish and grain are the chief exports. The imports, timber, rock salt, iron, earthenware, and other commodities in small quantities. Distant forty miles south-west of Londonderry, and 100 from Dublin.

BALLYTORE, a beautiful village, on the river Gris, in Kildare, twenty-eight miles from Dublin.

BALLYVOGY HEAD, a cape in Cork, opposite to Mizen Head, between which there is a large bay.

BAL'M, *v.* & *n.* } Gr. *βαλσαμον*, Lat. *bal-*
BALM'Y, } *samum*, Fr. *balsarme, baulme*, Ital. *balsamo*, Goth. *balsan*, Ang.-Sax. baldsame, balzame, Germ. and Swed. *balsam*, Dut. *balsem*. Applied to a fragrant shrub, as balm-mint; the sap of a shrub, as balm of Gilead; to fragrant ointment; to any thing fragrant, sweet-smelling, soothing, lenifying, lulling, mitigating, either literally or metaphorically. To *balm*, is to wash with *balm*, or any thing softening, fragrant, and antiseptick. See EMBALM. Of *balm*-mint, the species are 1. garden *balm*; 2. garden *balm*, with yellow variegated flowers; 3. stinking Roman *balm*, with soft hairy leaves.'—*Miller*. 'Balm of Gilead is the juice drawn from the balsam-tree, by making incisions in its bark. Its color is first white, soon after green; but when it comes to be old it is of the color of honey. The smell of it is agreeable, and very penetrating; the taste of it bitter, sharp, and astringent. As little issues from the plant by incision, the *balm* sold by the merchants is made of the wood and green branches of the tree, distilled by fire, which is generally adulterated with turpentine.'—*Calmet*. 'It seems to me that the zori of Gilead, which we render in our Bible by the word *balm*, was not the same with the balsam of Mecca, but only a better sort of turpentine, then in use for the cure of wounds and other diseases.'—*Prideaux's Connex.*

In May that mother is of monethes glade,
That the freshe flouris all, blew, white, and rede,
Ben quicke ayen, that winter ded had made,
And full of *baume*, is fleting euery mede.
Chaucer.

But forbeare to speake
Of baths, or *balming*, or of beauty now.
Chapman. Homer's Odysseg.

We saw thee in thy *balmy*-nest,
Bright dawn of our eternal day;
We saw thine eyes break from the east,
And chase the trembling shades away.
Crashaw.

Upon an hill a bright flame I did see,
Waving aloft with triple point to sky,
Which like incense of precious cedar tree,
With *balmy* odours fill'd th' ayre farre and nie.
Spenser.

Where many groomes and squyres ready were,
To take him from his steed full tenderly,
And eke the fayrest Alma mett him there,
With *balm* and wine, and costly spicery,
To comfort him in his infirmity. *Id.*

This is most strange;
That she, that even but now was your best object,
The argument of your praise, *balm* of your age,
Most best, most dearest, should, in this trice of time,
Commit a thing so monstrous, to dismantle
So many folds of favour. *Shakspeare. Lear.*

As bees
In spring time, when the sun with Taurus rides,
Pour forth their populous youth about the hive
In clusters; they among fresh dews and flowers
Fly to and fro, or on the smoothed plank,
The suburb of their straw-built citadel,
New rubb'd with *balm*, expatiate and confer
Their state-affairs. *Milton.*

Now gentle gales
Fanning their odoriferous wings dispense
Native perfumes, and whisper whence they stole
Those *balmy* spoils. *Id.*

Publicola, with healing hands shall pour
Balm in their wounds, and shall their life restore;
Greek arts, and Roman arms, in her conjoin'd,
Shall England raise, relieve oppress'd mankind.
Marvell.

So weak are human kind by nature made,
Or to such weaknes by their vice betrayed
Almighty vanity! to thee they owe
Their zest of pleasure and their *balm* of woe.
Young.

O smile, ye heavens, serene; ye mildews wan,
Ye blighting whirlwinds spare his *balmy* prime,
Nor lessen of his life the little span. *Beattie.*

BALM, in botany. See MELISSA.

BALM, or BALSAM. See BALSAM.

BALM MINT. See BALM.

BALM OF GILEAD, the English name of the dracocephalum canariense, or canary dragon's head.

BALM OF SULPHUR. See SULPHUR.

BALMURÆUM, the name given by Leslie to the ancient abbey of Balmerino, which was founded A. D. 1229, by king Alexander II. and his mother Emergarda, widow of William the Lion. That princess lies interred in the abbey church. See BALMERINO.

BALMURENACH, the original name of BALMERINO.

BALNAGOWN, a small river of Scotland, in Ross-shire, which bounds the parish of Kilmuir Easter, on the east.

BALNAHUAICH, one of the western isles of Scotland, on the coast of Argyllshire, and in the parish of Jura, on the north end of that island. Mr. Stewart, minister of Jura and Colonsay, in his statistical report of these parishes to Sir J. Sinclair, states the population of this island in 1793 at 28 families, and 132 souls. It abounds with excellent slates.

BALNAVES (Henry), a Scottish protestant divine, born in Fife, in the reign of James V., and educated at St. Andrew's. He went to France to finish his studies; and returning to Scotland, was admitted into the family of the earl of Arran, then regent; but in 1542 the earl dismissed him for having embraced the protestant religion. In 1554 he joined, says Mackenzie, the murderers of cardinal Beaton; for which he was declared a traitor, and excommunicated. While that party were besieged in the castle of St. Andrew's, they sent Balnaves to England, who returned with a considerable supply of provisions and money; but being at last obliged to surrender to the French, he was sent with the rest of the garrison to France. He returned to Scotland about 1559; and having joined the congregation, he was appointed one of the commissioners to treat with the duke of Norfolk on the part of queen Elizabeth. In 1563 he was made one of the lords of session, and appointed by the general assembly, with other learned men, to revise the Book of Discipline. Knox, his fellow-laborer, gives him the character of a very learned and pious divine. He died at Edinburgh in 1579. He wrote, 1. A Treatise concerning Justification, Edinburgh, 1530, 8vo. 2. A Catechism, or Confession of Faith, 1584, 8vo.

BALNEAL', *ad.*
BAL'NEARY, *n. s.*
BALN'EATION,
BALNE'ATORY, *ad.*
} These, with *bain* and *bagnio*, are derived from the Lat. *balneum*, which signifies a bath. To wet, to wash, to bathe.

Others attribute this *balneal* heat to the sun, whose all-scorching beames penetrating the pores of the earth, do heat the waters. *Howell's Letters.*

The *balnearies* and bathing-places he exposeth unto the summer setting. *Brown's Vulgar Errours.*

As the head may be disturbed by the skin, it may the same way be relieved, as is observable in *balneations*, and fomentations of that part. *Id.*

BALNEARII SERVI, in antiquity, servants or attendants belonging to the baths. Some were appointed to heat them, called fornicatores; others were denominated capsarii, who kept the clothes of those that went into them; others aliptæ, whose care it was to pull off the hair; others unctuarii, who anointed and perfumed the body.

BALNEARIUS FUR, or BALNEARIUM FUR, in antiquity, a kind of thief who practised stealing the clothes of persons in the baths. This crime was reckoned a kind of sacrilege; for the hot baths were sacred; hence they were more severely punished than common thieves, who stole out of private houses. The latter were acquitted with paying double the value of the thing stolen; whereas the former were punished with death.

BALNEGLERA, a town of Ireland, in the county of Armagh.

BALNE'UM, *n.* a vessel used in chemistry.

BALNEUM, a term used by chemists to signify a vessel filled with some matter, as sand, water, or the like, in which another is placed that requires a more gentle heat than the naked fire. See CHEMISTRY, Index.

BALNEUM ARENOSUM, a sand bath.

BALNEUM FOENI, a hay bath, is when a body is laid to digest in moist hay, whose heat is likewise directed by the application of water.

BALNEUM MARIÆ is by some so called, as being supposed to have been first invented by the blessed Virgin; but by others, with more propriety, it is called

BALNEUM MARIS, or sea bath, in regard the vessel here floats as it were in a sea. Here the cucurbit is placed in hot water, which warms the matter contained, and disperses it for exhalation.

BALNEUM MINERALE, or mineral bath, is used by some chemists for aqua regia.

BALNEUM RORIS, or RORITUM, is a furnace where the cucurbit, or distilling vessel, is only suspended over the vapor of water, and not in contact with the water itself.

BALNEUM SICCUM, or ARENOSUM, a dry or sand heat.

BALNEUM VAPORARIUM, or the vapor bath; the same with Balneum roris.

BALOLY, a town of Hindostan, in the district of Dowlatabad, thirty-five miles E.N.E. of Oudighir.

BALONGO, three islands in the bay of Bengal, near the coast of Arracan. Long. 93° to 93° 20′ E., lat. 19° 50′ to 20° 5′ N.

BALONICH, in the ancient materia medica, a name given by Avicena, Averrhoes, and others, to a kind of camphor, which they describe as coarse, brown, and of less value than the other sorts. This is probably the same with our rough camphor, as brought over to us from the East Indies.

BALOOCHISTAN, BALOCHASTHAN, or, according to some, Belujistan, a large province west of the Indus, bounded on the north by Seistan in Persia and Candahar, on the south by the sea, on the east by the province of Sinde and Shekarpoor, and on the west by Mekran in Persia. It comprehends all that space of territory lying between the 25° and 30° of north latitude, and the 62° and 69° of east longitude. The political limits are, however, difficult to define with accuracy, from the perpetual fluctuations to which they are subject. The province is extremely mountainous, peopled by warlike semi-barbarous tribes, and was scarcely known to Europeans till the years 1809 and 1810, when it was visited by Mr. Pottinger and a few other officers in the East India Company's service. At that time the whole country of Baloochistan was divided into the following provinces:—1 Those of J'hálawán and Sárawán, and districts of Kelât. 2. Macrán and Les. 3. Kohistan, the mountainous region west of the desert. 4. The desert. 5. Cach Gandávah and the district of Herrend Dájel. 6. The province of Sind'h.

The principal provinces at present are Jalawan, Sarawan, Zukree, Mekran, Lus and Mutch, although this includes territories not properly subject to Mahmood Khan, the present Ameer of Kelàt, the capital.

To the south Baloochistan Proper commences at Kohinee, twenty-five miles N. E. from Bayla, in lat. 26° 35′ N., and extends to Nooshky, seventy-nine miles N. W. from Kelat, in lat. 30° N. The country is described generally as a confused heap of mountains, through which the roads lead for the most part in water-courses, and the beds of small rivers.

The principal mountainous range, called by Mr. Pottinger Brahúïc, from the Brahúis who inhabit it, rises abruptly out of the sea to a considerable height at cape Mowári, the Monze of the Maps, in lat. 25° N., and long. 66° 58′ E. whence it runs in a north-east direction, afterwards to the north, and at last resuming its original course sinks into moderate hills and unites with the lowest ridges of the chain that traverses Afghánistán. Anciently this chain formed the separating boundary between Persia and India. Near the Indian Ocean it is not more than thirty miles in breadth; but about the same distance from the shore it breaks into a variety of branches, and stretches over the whole country, west and north, in which direction it unites itself with the Persian ranges, ending abruptly in the sea, or sinking in the sandy region which divides the cultivable territory from the ocean. The general inclination of the boldest ridges is from the north-east to the south-west, whence it becomes highly probable that the Brahúïc range is a prolongation of the Hindù Cush, the Emodus of the ancients, in which the Hezárah range or Paropamisus, extending as far as the Caspian, has its origin. With this latter chain the western extremity of the Brahúïc mountains, extending north beyond the main body of highlands, is thought to be united; a branch which lying between Seistan and Kirmán forms the eastern boundary of the Persian empire. Another division of this range extends from their south-western angle, and, running nearly parallel with the main heights in that direction, forms at last a junction with the mountains of Láristan, in Persia, and sends out many collateral ramifications terminating in headlands on the coast of Macrán. In the western parts of that province the mountains recoil on the principal body, and form a complete mass of mountains, irregularly crowded, which the natives denominate Kohistàn, or the highlands. The length of this range is stated at 350 miles, and the breadth of the loftiest ridge at nearly 200. The town of Kelàt stands upon the highest level; the extraordinary elevation of which is supposed to exceed by one-eighth the highest peaks of the Pyrenees; a fact which is confirmed by the severity of its winters, and by the great height of the bold defiles bending down to the northern desert.

In this mountainous country, filled probably with primitive rocks, the soil is generally barren; but in the upper provinces rich grain crops are gathered in from fields which to the sight exhibit scarcely any thing but pebbles. The lowlands of Cach Gandávah, formed by the alluvions of the Indus, are extremely fertile, producing grain, cotton, indigo, and oil. The valleys of Wudd, Khozdar, and Sohrab, are capable of cultivation. The precious metals, together with lead, iron, copper, tin, and antimony, abound in many parts of the country; as also rock-salt, nitre, and several medicinal minerals of great value.

The whole of this region, though mountainous, is remarkably destitute of water. It has not a single river that is navigable; but on the northern side the hills are a few brooks and mountain torrents; but these, with the exception of the Budar, are frequently dried up by the intense avidity of the lowland climate. The stream, known by different names in different parts of its course, as Budar, Mulidani, B'hagwar, Desti, &c., is supposed to have been formerly much larger and more important than at present; its source is in the district of Garmsail, near the banks of the Helmind, or Hindmind; but has never been traced by Europeans beyond the parallel of 29° from the ocean. At the distance of a hundred yards from the beach it is not more than twenty inches deep; more remote from the shore, however, its magnitude increases; and in the district of Penj-gúr it has a copious and perpetual stream.

The climate, and consequently the seasons, are very different in different parts of the country. In the loftiest regions they resemble those of the southern and middle parts of Europe, whilst, in the maritime provinces and deserts, they approximate to that of the tropics, and are subject only to three changes, introducing the hot, the cold, and the rainy periods. In J'hálawán and Saráwán the spring commences towards the end of February; the summer at the beginning of May; the autumn succeeds and continues through August and September, after which a severe winter concludes the year. The rains in the level sands of Macrán continue through February and March, and afterwards return in June and July, the latter being occasioned by a south-west monsoon. The hot season lasts from March till October, including the second rains, after which the cold succeeds and continues from November till February. The aridity and drought in Macrán are so extreme in the summer as to render the country scarcely habitable. Kohistán has a climate of medium temperature; and Cach Gandávah, where the heat is so intolerable in the summer, has scarcely any winter at all.

So great a variety of climate is capable of producing a great variety of vegetation; and after Nadir Shah, in 1739, granted the whole of this territory to Nasír Khan, that prince endeavoured to inspire his subjects with the love of agriculture, and gardening. With this view, he not only introduced various fruits from Cabul, but almost all the productions of temperate and tropical climes, numerous kinds of which are still to be found in some part or other of these dominions. All the different kinds of European grain, madder, cotton, indigo, esculent vegetables, &c. are produced in great abundance; wheat is sown in August and reaped the following June; barley is sown in September, and reaped in May. Madder, after lying in the ground three years, is brought to great perfection. Ushpusht, or camel-grass, a large species

of clover (perhaps lucern), produces two crops in a month, and lasts for six or seven years. The provinces of Macrán and Les, or Las, yield a crop of grass in each of the rain seasons. The palms throughout the whole region give a large quantity of dates, and, the impregnation of the female blossoms being carefully attended to, the varieties are almost innumerable. Rice is also plentiful, and forms a great part of the food of the inhabitants; besides which, they have bajrì (holcus spicatus); jowarí, (holcus rosghum); mung, (phaseolus mungo); mayz, dal, urad, and matar, (leguminous vegetables); channà, (cicer arietinum); and til, (sesamum). Among the timber trees of Baloochistan may be enumerated, the Bábal, (mimosa famesiana); laï, (tamarix); mulberry, nim, (melia azad lirachta); pipal, (ficus religiosa); sisù, (dalbergia sissoo); chinar, (oriental plane); mango, walnut, and sycamore. The common European forest trees are wanting. The apúrs, a species of the zizyphus, resembles the jujube, and tamarind. The wood of the former has much the appearance of teak, and both are remarkably hard and durable

The birds and animals are of numerous species, from the great diversity of climate. Most of our domestic fowls are common, with the exception of ducks, geese, and turkies. The magpye, a bird unknown in India, is not uncommon about Kelât. Flamingoes and floricans (otis houbára) are found in the lower districts. Poisonous reptiles are less frequent than in India. Freshwater fish are exceedingly scarce. The horses of Baloochistan are strong, but very vicious; their sheep are broad tailed, of the description of the Persian dunbah. Camels and dromedaries are the most common beasts of burthen, the latter of which, with only one hump on its back, is remarkable for its strength, swiftness, and power of abstinence. Wild and very fierce dogs are found in the woods; and the breed of those that are tame, especially the shepherd's dog and the greyhound, is an object of particular attention.

The inhabitants have been divided into four classes:—1. The Baloochees; 2. the Brahooees; 3. the Dehwárs; 4. the Hindoos. The two first of these, speaking different languages, are evidently distinct races, forming together the majority of the inhabitants. Mr. Pottinger thinks the upper and inhospitable regions of J'hálawán and Sáráwán were first peopled by the Hindoos, who, in the early part of the eighth century, fled from the victorious armies of Mahmúd Sabuctagín and his son Masûúd. The two principal tribes abovenamed are divided into many different kheils, or tomuns, but their actual number has never been ascertained.

2. The Balooches, called Nharroe, or Rukshani, inhabit that part of the country lying west of the desert, and are a tribe containing 1000 fighting men; by whom the judgalls or cultivators have been nearly exterminated out of Northern Mekran. Mr. Pottinger thinks they are descendants of the Turcumán soldiers, who served in the armies of the Seljúk dynasties, and were dispersed when those dynasties were overturned; on which supposition, the first establishment of the Balooches in the mountainous regions east of Persia, must be referred to the fifth century of the Hegirah, answering to the eleventh of the Christian era, when they begin to be named by the Asiatic historians. But the Lord's prayer in their language, published by the baptist missionaries at Serámpór, affords us evidence of its having been derived from a Tartarian dialect; also, we may observe, that the Belûchíkí, or Belúch, commonly spoken, is evidently a corrupt dialect of the Persian, approaching to that of the Curds, on the western side of Persia, as the Brahúíkí, or Bráhú, does to the Hinduwe spoken in the Penj-áb.

Whatever be their origin they are found in the greatest numbers in the northern and eastern provinces, and are divided into three leading tribes,—the Nhárúis, Rinds, and Maghsis, of which the first and last are most important; the former on the western side of Baloochistan; the latter on the low lands of Cuch Gundáva, at the eastern foot of the mountains. These tribes are again subdivided, and those of Rind and Mugree, who formerly emigrated from Mekran, and live in villages, retain the appellation of Toomuns,

The Balooches are generally tall and handsome, but not athletic; patient, and full of courage. They delight in predatory excursions called chapaós, greatly resembling the forays of our northern borders in the sixteenth century. On these occasions they are mounted on dromedaries, provided with dates, bread, sour cheese, and water, and march without halting to the place they mean to attack; here they conceal themselves in a wood till night, and when the inhabitants are asleep, hasten forwards, burning, destroying, and carrying off whatever comes in their way. These diversions occasion frequent warfare; but hospitality is nevertheless general, and pilfering despised. Their domestic habits are pastoral, and their subjection to the chiefs voluntary. They reside in tents, or ghedáns of black felt, or coarse blanket, stretched over a frame of wicker-work, formed of twigs of the gaz, or tamarisk; an assemblage of which light habitations forms a túman or village, and its inhabitants a kheïl or family. The men are indolent, and great lovers of opium, though not accustomed to any other species of intoxication. They are less jealous of their wives than Mussulmans generally; of which, though their religion allows a plurality, they commonly have only one. Their regard to the sanctity of marriage is exemplary, and many of their customs appear to originate in the law of Moses. A widow must be married by her husband's next brother: adultery is punishable by the death of both parties; incontinence before marriage authorises divorce afterwards, the sang or promise of marriage is inviolable; and a betrothed virgin is considered as having nearly the same rights as a married woman.

Their clothing consists of a long shirt, and trowsers of blue and white calico, together with a quilted cap, round which, when they are in full dress, a shawl is twisted; in winter thick warm surtouts are worn by all classes. The women when young tress their hair, and twist it round their heads, forming the ends into a knot

on the crown, so as to give it the appearance of a cap. Their dress in other respects resembles that of the men, but exposes the bosom as much as the tunic worn by the females of Persia. When out of doors they are completely veiled.

The soldiers, although awkwardly accoutred, are excellent marksmen; to kill a lark or sparrow with a single ball at the distance of fifty or sixty yards is not considered by them as any proof of dexterity; and the nézah-bázi, or spear play, their favorite diversion, evinces not only considerable skill, but superior muscular strength. It consists in the rider piercing a wooden stake, driven into the ground, with the point of his spear while his horse is at full speed; and requires the most critical management of both horse and spear at the same instant of time. On the whole, the similarity between the manners of this people and those of the Curds and wandering Turcumáns, the Yaruk of the Turks, found in every part of Anatolia, render the above conjecture as to their origin highly probable.

2. The Brahooees, or Bráhúis, are a strong hardy race of men, with uncommonly short and thick bones. Their cast of countenance is different from the Balooches and Asiatics, generally exhibiting a roundness of face, and bluntness of features, somewhat resembling Europeans. They are divided into separate tribes, the principal of which are the following:

	Men.
The Kumburanee, or the tribe of the chief Mahmood Khan, estimated at . . .	1,000
The tribe of Mengul	12,000
Zukree	6,000
Pandurani	6,000
Nahari	6,000
Imaum Hosseing	4,000
Begungje	1,000

They are hard-working people, of voracious appetites, devouring their animal food almost raw. When they cure their meat, it is effected by drying it in the sun, and smoking it over a fire; after which it will keep for several months, and in flavor very much resembles rein-deer's tongue. The people generally are less ferocious than their neighbours, for which reason the government of their chiefs asssumes a more despotic character. They are disinterested, placable, and humane; the very reverse of the Baloochees, and the uncouthness of their manners is to be attributed solely to their want of civilisation. All the Baloochees are excellent workmen, but none are equal to the Brahooees in strength and courage. Broad sword exercise, and shooting at a mark, are their common diversions; in both of which they are said to excel. Their breed of shepherds' dogs is excellent; greyhounds are also trained amongst them with great care, and a single one is frequently exchanged for two camels, or sold for 400 rupees. Their breed of horses is large and hardy, equally accustomed to the heat of Gundáva and the cold of Kelát, but they are often vicious.

The Brahooees, in religion, are strict observers of the Sunnah, or the traditional law of the Mussulmans, in which respect they approach nearer to the Turks than the Persians. They are not jealous of the women, who sometimes assist in out-door work, and are seldom secluded from the society of the men. The common dress used in this part of the province is an under coat, which fits close to the body and is worn over the pyrahun or shirt: their trowsers are gathered up at the ankle, and a small round flat-topped cap of felt silk is the only covering of the head. The shepherds wear a white felt garment above the shirt in winter, with cloth trowsers and a felt cap. The females wear a kind of stays which lace behind, and give them an appearance similar to that of the peasants in Switzerland. It has also been observed that with the exception of the shepherds, the Brahooees never increase their clothing in the severest weather. The common language is the Koorgalee.

3. The Dehwárs, or Dehkáns, i. e. villagers, are exclusively employed in agriculture, and hold their lands by a sort of feudal tenure, being bound to provide the khan's guests with water, fuel, provender, &c.; to attend him in his hunting excursions, and to supply him with couriers when required, in consideration of which they are exempted from all military duties; they are tacit, harmless, and submissive to the other tribes. They differ considerably from all the other inhabitants of the province, being uncomely in appearance, low in stature, coarse in features, with high cheek bones, but possessing a more artless, good humored and honest expression of countenance. They never migrate, and their language is pure Persian. Mr. Pottinger from this latter circumstance concluded that they sprang from the Gebrs, or followers of Zoroaster, who fled before the victorious arms of the Mussulmans, but, against this opinion, their dispersion through other parts of Asia, their correspondence with the tájes of Afghánistán, together with their zealous observance of the Sunnah, powerfully militate.

4. The Hindoos are few in number and carry on the miserable traffic of the country, acting as money-changers and agents to the native chiefs. Many of them are not so indigenous as they have been generally represented, but are merchants from Multán. The Hindoos are supposed to have been the first settlers in these mountains, and were long tolerated by their Mussulman conquerors, who, according to current traditions, were first admitted into their impregnable retreats as traders, where being indulged with too much lenience, they finally subverted the government. Numerous Hindoo occupiers, however, still remained in the country, till within the last two centuries, when the barbarity of the Mahommedan tribes increased to such a degree that no medium could be observed, and the native Hindoos, with the exception of a few merchants, underwent compulsory conversion, or fled the country. The remaining few have however considerably degenerated from the laws of the Shaster; they eat animal food, use leathern bags, and in many other respects violate their religious tenets, and perhaps it is this partial conformity which constitutes the true principle of their toleration.

Of the divisions of Baloochistan generally, Jhálawán and Sáráwán, with the intermediate

district, extending to the north and north-east, and bounded by that part of the Brahúïc mountains which is beyond the twenty-sixth degree of north latitude, come first under our consideration. Jhálawán is the most southerly, containing six t'hacs or districts, each governed by a different chief. Zehri, the largest town, is surrounded by a mud wall, and contains 2000 houses. There are no streams in the whole province more than ten inches deep in the dry season, and water can be obtained only by digging in the beds of torrents. Kelât properly belongs to Sáráwán, but the usurpations of the khán have rendered it nearly a distinct province. To the north of it, bounded by the Afghán hills and the desert east of Kandahár, lies Sáráwán, divided into inferior districts, and occupied by migratory tribes of the Bráhúics. The province is mountainous, not possessing a single level of more than a few miles in circumference, except a naked plain of about thirty miles in extent, called the Deshti-bé-daulat, or Pennyless Desert, forming a remarkable gap in the northern front of the great chain. The southern province is fertile, having frequent rains, but the least populous; Kelât is considered the capital of Baloochistan generally.

Nooshky is a small tract of about thirty-six square miles, lying at the base of the Kelat mountains. It is an arid tract, the sand hills of which shift with the winds. A few patches of cultivable land are nevertheless met with occasionally; and a small stream, called the Xysur, issuing from the hills, irrigates the portion of country immediately contiguous. The inhabitants dwell under black felts stretched over a frame of wickerwork made of the guz plant, by which they are sheltered from the heat of the sun. The soil being sandy, the heat is excessive in the summer; the stream fails in the valley, and the inhabitants migrate to the mountains for cool air and water.

The fine valley of Sohrab extends north and south about fifty miles in length by twelve in breadth. The water from the hills runs through its centre, and around it are scattered a few villages.

The two provinces of Les and Macrán are included between the higher ridges of the Brahúïc chain and the Indian Ocean, and are varied by intersections of such branches of these hills as diverge towards the sea. On the north lie the regions of J'háláwán, Sáráwán, and Kelât, together with Kehistan and the desert; and on the west the Persian Láristán. Lus or Les, signifying in the Jedgálí language a valley or plain, presents a perfectly level surface for about ninety miles by fifty, enclosed on three sides by lofty mountains passable by only five lekhs, or defiles, two in the eastern and western, and one in the northern branch of this great chain. This is a fertile province, watered by two small rivers, Habb and Puráli (the Arabis of the ancients), and together with Macrán formed a part of the Persian empire. The sovereignty is at present held on a feudal tenure under the khan of Kelât. Bélá, the capital, stands on a rocky eminence on the northern bank of the Puráli. Many of the inhabitants are merchants from Multán and Shicárpúr, west of the Indus, and their immunities are considerable.

The population of Lus is about 26,000, who are of the same tribe, though distinguished by the different names of Jedgál, Jók'hyà, Jét'h, and Numrì. They are an indolent and curious people; the men athletic and middle-sized, the women plain, and dirty. Their manners, appearance, and language, prove that they must have been derived originally from Hindostan; and the latter called Jedgali or Jét'hgálí has a close affinity with that of Sind'h. They are fond of intoxicating drugs, and nearly one third part of them are migratory.

Of Makran there are fourteen districts, several of which are uninhabited. Water is extremely scarce throughout the whole territory, a great part of which consists of barren mountains with here and there a fertile valley, or an island of palms emerging from the waste, similar to those found in the vast deserts of Africa. Many of the streams of this region, now trifling brooks, were formerly navigable. In one of these, namely, Ag'hón Nadì, is a celebrated well called Anilcà Cund, or Fathomless Abyss, the depth of which is not known. The Hindoos attribute the digging of it to Cálí, whose shrine at Hinglatz or Hing-láj, just above it, is the resort of numerous pilgrims. The river Dest waters the district of Kedge, or Kej, which receives its name from the capital of the province. This ancient town carried on formerly a considerable trade with Kandahár and the north of India, but has gone to decay since its governors threw off their allegiance to the khán of Kelât. It has many advantages of site, and covers three sides of the base of a hill, on the summit of which is a castle deemed impregnable.

Kohistan is surrounded on the east, north, and west, by sandy deserts, with the exception of a narrow range of hills which connect it on the north-west with the Paropamisus of the ancients, and on the south it is bounded by the Bráhúïc chain, of which it forms one of the extremities. It is divided into two districts, the Maídání or plain, and the Chópakí or hilly country. Water is extremely scarce and the population scanty, consisting chiefly of Belúches. It abounds with salt and chalybeate springs, with numerous mineral productions, and its hills occasionally betray a volcanic origin.

The desert, 300 miles long and 200 broad, is traversed by the Helmind or Hermend, the natural boundary of Baloochistan, and separated on the west by a narrow range of hills from the deserts of Kirmán. Its utmost extent including the latter is about 600 miles diagonally from east to west, and 500 miles from north to south, and is bounded on the north and east by the mountains of Afghánistán.

This vast ocean of sand is composed of particles so light that when taken up into the hand they are little more than palpable, and when agitated by the winds are thrown into an irregular mass of waves running east and west. Most of these banks rise perpendicularly from ten to twenty feet on the leeward side; and, from the redness of their appearance, might be taken for brick walls, whilst the windward side slopes

off with a gradual declivity to the base of the next bank or wave. The camels are with difficulty driven up the perpendicular or leeward sides of these sandy hills; but on the shelving sides they ascend with laborious perseverance, and, having reached the summit of a wave, drop most expertly on their knees and slide down with the sand to the bottom of the next hollow. These mountains of sand are observed to be succeeded by hard black gravel, without the least appearance of vegetation, and bare stony hills lying at the base of the mountains, are the first ascent towards higher and less barren regions. Throughout the whole desert the sands are extremely hot, and the fine particles, raised by the wind, getting into the eyes, nostrils, and mouth of the traveller, cause an extreme degree of painful irritation and thirst.

The Regency of Sind'h and also Cach Gandávah, east of the Brahúïc chain of mountains, between India and Persia, though commonly included in the kingdom of Baloochistan, belong more properly to Hindostan.

With respect to the history of Baloochistan antiquity is almost silent. The mountainous tract, which forms the central and most important part of this territory, appears to have been unknown to the ancients, and was perhaps uninhabited up to the period of the Mahommedan conquests in the seventh and eighth centuries of the christian era. Alexander marched from Pattálá, (T'hatt 'hah or Tattah) on the Indus, through the territory of the Arabitæ, still indicated by the cape called Arabù by the natives, the Arabah of the maps, thence he advanced into the country of the Oreïtæ in his way to Gedrosia or Macrán, where the greater part of his troops are said to have perished from thirst, famine and fatigue. Craterus who commanded, with another part of his army, passed by a circuitous route through Arachosia and Drangiana, the Kandahár and Seistán of modern geography; countries placed in a higher latitude, south of the extreme deserts which separate the Belúches from Persia and Afghánistán. The Mahommedan invaders followed the track of Alexander, whilst the Sultans of Ghaznah, who made themselves masters of the level country to the mouth of the Indus, and the coast as far as the confines of Persia, never descended the hills. The Persian historians say the idolatrous Hindoos were driven into these retreats; but, since the present occupiers betray no affinity with the natives of India in customs, features, or language, the origin already assigned is more probable. They themselves affirm that they are the original natives of the hills, and that their name Bráhúé is derived from Baróhí mountains, whilst the inhabitants of the plain are called N'háríús or Naróhis, Lowlanders. The most ancient traditions do not carry the origin of the Mussulman government further back than seven generations.

About two centuries ago the city of Kelât with the surrounding country was possessed by Sewah Rajah a Hindoo, and the Balooches tended flocks of sheep in the mountains. To protect the inhabitants from the depredations of a people residing in the low country between Kelât, Sinde, and Shekárpoor, the rajah sent for Kumber a Baloochy chief, and took him into his service, allowing him five bundles of grass and wood per day for each man. This auxiliary shortly after seized the government, and raised the tribute to a hundred bundles, besides a contribution of horses, camels, and footrunners. This tribute is still occasionally exacted by the Khan of Kelât, and paid by the detmars or peasants in the immediate vicinity.

Kumber the first usurper was succeeded by his son Sumbar, the father of the next prince, Mahommed Khan, who in his turn was succeeded by his son Abdulla Khan. This prince conquered a considerable part of Cach Gandávah, till then subject to the Nuwwábs of Sind'h. About that time the celebrated Nádir Sháh carried his victorious arms into India; and while at Kandahár sent an army into the mountains of the Belúches. Abdu'llah sent his two sons as hostages to the conqueror's camp; after which he was allowed to continue in his government as a feudatory of Persia. Upon the death of Abdu'llah, Nasir Khan his younger son, by the advice of Nádir Sháh, put to death his elder brother, who had succeeded to the sovereignty, and took possession of the Gad'hi or throne; and having performed some important services to his patron, was rewarded by the donation of several provinces, and, being a man of considerable abilities, greatly enlarged his dominions, so that at his death, in 1795, the territories descended to his son and successor Mahmood Khan in a very flourishing and prosperous state. This prince is now about twenty-nine years of age; but his talents being very inferior to those of his father, the dominions of Kelât have been greatly curtailed by the Ameers of Sinde and other neighbouring provinces. His brother Mustapha Khan, who is about one year younger than the sovereign, is, however, of an active martial disposition, and bids fair on his accession to restore the empire and improve the hereditary dominions. The territory at present subject to Mahmood Khan, comprises the high hilly country of Sewistan, and the low lands of Cutch Gundava and Amund, Dajil to the eastward; bounded on the north by Khorassan; on the south by Lus and Sinde; on the west by Mekran; and on the east by Sinde. His clear revenue is about three lacks of rupees, and is collected from Amund Dajil, Cutch Gundava, and the bazaar tolls of Kelât. The Khans of Baloochistan acknowledge the paramount authority of the Cabul sovereigns, to whom they are feudatories; but their obedience is in proportion to the talents of the reigning prince, and the political circumstances of the Cabul government. The present territories of Mahmood Khan are supposed capable of raising an army, infantry and cavalry, of 25,000 men, although formerly the sovereign could raise 60,000. See *Christie*, *Kinneir*, *&c.*

It was probably without intention that Nasir Khán laid the foundation of the present government, which is rather a military republic than an absolute monarchy. The Serdárs or chiefs hold their lands on feudal tenure, each tribe chooses its own Serdár, in whose family the office becomes hereditary. The general administration is, however, still vested in the Khán of Kelât. Each

Serdár in time of war attends with his quota of troops, and is bound to obey the orders of the sovereign; but if to his own detriment, receives compensation.

A new code of laws was established by Nasir, of which the Koran is the standard, accompanied however by the following improvements. In cases of murder where the deceased is a foreigner, every one concerned in the crime is immediately executed without commutation. Burglaries and night robberies are punished with death. Adultery may be avenged by the husband; but the clearest testimonials of guilt are required; and if he fails of producing these he is liable to severe punishment. Minor offences are cognizable by the Serdár of the Kheïl, or family, with an appeal lying to the Serdár of the whole tribe, and ultimately to the Khán himself, who commonly consults the heads of his family before he decides on any intricate cause. No execution can take place without an order from the sovereign, except in case of the murder of a traveller on his road, when, as a speedy execution is necessary, the nearest chief is empowered to enforce the penalty of the law.

BALOR, a town on the east coast of the island of Luzon. Long. 122° 5′ E., lat. 15° 18′ N.

BAL'OTADE, *n. s.* The leap of an horse, so that when his fore-feet are in the air, he shows nothing but the shoes of his hinder feet, without yerking out. A *balotade* differs from a capriole; for when a horse works at caprioles, he yerks out his hinder legs with all his force.—*Farrier's Dictionary.*

BALOTE, a town on the east coast of the island of Mindoro. Long. 121° 15′ E., lat. 13° 3′ N.

BALOU, a town of Armenia, twenty-five miles north-west of Khars.

BALREMIT Bay, a bay on the east coast of the island of Colonsay, one of the Hebrides. Long. 6° 7′ W., lat. 56° 6′ N.

BALRIE Castle, a very ancient fort, now in ruins, situated on an eminence at the west end of the moss of that name, Angusshire, Scotland. It was destroyed by the marquis of Argyll in 1640. The walls are eight feet thick. This castle and the adjacent lands were the property of the last viscount Fenton.

BALROTHERY, or Balruddery, a town of Ireland, in the county of Dublin, fourteen miles from the city and one from the sea.

BALSA, an ancient town of Lusitania in the Peuger-Cunæus; now called Tavira, in Algarva.

Balsam, or Native Balsam, an oily, resinous, fluid substance, flowing either spontaneously, or by means of incision, from certain plants. There are a great variety of balsams, particularly distinguished by the names of the substances from which they are obtained; and which will be found explained under their names as they occur.

BAL'SAM,
Balsam'ation,
Balsam'ical,
Balsam'ick, *n.* & *adj.*
Balsam'ous.

Of the same derivation as *balm*, but more limited in its application. It is almost exclusively used to designate an unctuous or oily mixture, generally attended with fragrance.

Should I sigh out my days in grief,
And, as my beads, count miseries;
My mind would meet with no relief,
For all the *balsam* of my eyes. *Stevenson.*

Brave spirits are a *balsam* to themselves,
There is a nobleness of mind that heals
Wounds beyond salves. *Cartwright.*

Is this the *balsam* that the usuring senate
Pours into captains' wounds? Ha! banishment?
It comes not ill; I hate not to be banish'd;
It is a cause worthy my spleen and fury,
That I may strike at Athens. *Shakspeare.*

Christ's blood our *balsam*; if that cure us here,
Him, when our judge, we shall not find severe.
Denham.

That this herb [ros-solis] is the cause thereof, shepherds affirm and deny; whether it hath a cordial virtue by sudden refection, sensible experiment doth hardly confirm; but that it may have a *balsamical* and resumptive virtue, whereby it becomes a good medicine in catarrhes and consumptive dispositions, practice and reason conclude. *Brown's Vulgar Errours.*

The Britons squeeze the works
Of sedulous bees, and mixing odorous herbs,
Prepare *balsamic* cups, to wheezing lungs
Medicinal, and short-breath'd ancient sires.
J. Philips.

Now the radical moisture is not the tallow or fat of animals, but an oily and *balsamous* substance; for the fat or tallow, as also the phlegm or watery parts, are cold; whereas the oily and *balsamous* parts are of a lively heat and spirit. *Sterne.*

Balsam Apple. Lat. *momordica.* An annual Indian plant.

Balsam Tree. This is a shrub which scarce grows taller than the pomegranate-tree; the blossoms are like small stars, very fragrant; whence spring out little pointed pods, enclosing a fruit like an almond, called carpobalsamum, as the wood is called xylobalsamum, and the juice opobalsamum.

BALSAMATION is used by some writers for the art or act of embalming dead bodies. Dr. Hook speaks of an universal balsamation, or method of preserving all kinds of bodies from corruption, invented by Dr. Elshot.

BALSAMELÆON, in the materia medica, a name given by some to the balm of Gilead.

BALSAMELÆUM, in ecclesiastical writers, the sacred chrysm.

BALSAMINA Scandens, a name given to the large fruited white briony of Ceylon.

BALSAMINE, Female, in botany, the name given by Tournefort to a genus of plants, called by Linnæus, impatiens, and belonging to the class of syngenesia monogamia.

BALSAMITA, a species of tansy.

BALSAMICA. See Balsamics.

BALSAMICS, Balsamica, Latin, i. e. mitigating; this term includes medicines of very different qualities, as emollients, detergents, restoratives, &c.; but in all these kinds there are these requisites, that they be soft, yielding, and adhesive; and by their smallness they have a ready disposition to motion. Medicines of this tribe are generally required for complaints whose seat is in the viscera; and as they cannot be conveyed there but by the common road of the circulation, it follows that no great effects can be expected from them but by their long continuation.

Hoffman calls by the name of balsamics those medicines which are hot and acrid, also the natural balsams, gums, &c. by which the vital heat is increased.

BALSAMITA, in botany, a genus of plants, of the class syngenesia, and order polygamia æqualis. Its generic character, is receptacle naked, pappus none, calyx imbricate. It contains four species, of which the only one requiring notice is the B. vulgaris (tanacetum balsamita of Linnæus) common costmary, or alecost. Its stem is herbaceous, leaves oval, dentate; inferior petiolate; superior sessile, auriculate at the base, flowers corymbose. It is a perennial plant, native of the south of France and Italy; and was formerly prescribed in the pharmacopœias as a carminative.

BALSAS, a town of Peru, in the province of Chachapuyas, on the east shore of the Amazons, forty miles north of Caxamarca. Lat. 6° 16′ S.

BALSEY Clift, a high land on the east coast of England, between Orford and Harwich.

BALSO, a river of Quito, which, after winding through forests, enters the Bobonasa.

BALSTAL, a well-built market town of Switzerland, in the canton of Solothurn. The inhabitants carry on a great trade between Bale and Solothurn. Ten miles north-east of Solothurn.

BALSAMON (Theodore), patriarch of Antioch in the twelfth century. He wrote a number of works on the canon law, which were printed at Paris, in folio, in 1620.

BALSHAM, or Belesale (Hugh de), the tenth bishop of Ely, in the thirteenth century, was first a monk, and afterwards subprior of the Benedictine monastery at Ely. In 1247 he was chosen bishop by the convent. But king Henry III. who had recommended his chancellor Henry de Wengham, refused to confirm his election; whereupon Balsham went to Rome to be confirmed by the pope; which, however, was not done for ten years, when at last his holiness confirmed his election in 1257. Bishop Balsham then executed what he had long intended; by laying the foundation of St. Peter's College, Cambridge, the first in that University, which has immortalised his name as the patron of literature. He was also very charitable to the poor. He died in 1286, and was buried in the cathedral of Ely.

BALTA, or Balto, a town of European Russia, the capital of a circle in the government of Podolia, situated on the Kadyma, a tributary stream of the Bog. Before the annexation of this part of Poland to Russia, one half of Balta belonged to the palatinate of Braclaw, and the other to Tartary. In 1767, in the war which broke out between the Russians and Turks, the town of Balta was laid in ashes by the former. Sixty-five miles N. N. E. of Bender.

Balta, one of the smaller Shetland islands, near the east coast of Unst. Long. 4° 2′ W., lat. 61° 7′ N.

BALTAGI, among the Turks, porters, and hewers of wood, in the court of the grand seignior; who also mount on horseback when the emperor rides out. Part of them, who, for that purpose, must be castrated, keep watch at the gates of the first and second courts of the seraglio. These last are called capigi, and their commander capigi pacha.

BALTCHUTZKO, a town of Asiatic Russia, in the government of Kolhyvan.

BALTEATUS, in entomology, a species of cimex, inhabiting South America. 2. A species of elater, of a black color; anterior half of the wing cases rufous. Linn. Fn. Suec. A native of Europe.

BALTEUS, in entomology, a species of cerambyx, that inhabits Lusitania. The thorax spinous; body ferruginous; abdomen ovate; wing cases with a blackish band. Linnæus.

BALTHASAR (Christopher) a learned French author of the seventeenth century. He followed the profession of an advocate; but having embraced the protestant religion, from pleading at the bar, he became a champion for the reformed churches; and in 1659 a pension was settled upon him by the national synod at Loudun, in consideration of his services. He displayed great abilities in combating Baronius.

BALTHAZARINI, an Italian musician of the sixteenth century, who was a great favorite at the French court in the reign of Henry III. He composed a ballet, which he called Ceres and her Nymphs, in 1531, designed for the marriage of the duke de Joyeuse with Mademoiselle de Vaudemont, the queen's sister; and this is thought to have been the origin of the ballet heroique, in France.

BALTHEUS Orionis, the belt of Orion, in astronomy, a part of the constellation of Orion, consisting of three bright stars of the second magnitude, placed nearly in a right line in Orion's girdle.

BALTHICA, in conchology, a species of tellina that inhabits the Baltic Sea; the shell roundish, smooth outside, carnation color. Linn. Fn. Suec. About the size of a horse-bean, and very rarely larger; extremely thin, pellucid, brittle, and white within. Chemnitz, &c.

Balthica, a species of helix, found on the shores of the Baltic; the shell imperforated, ovate, and pointed; with elevated wrinkles; aperture ovate, and very ample. Linn. Fn. Suec. This animal is black, with two tentacula; shell pellucid, and with four whorls.

BALTHICUS, a species of nautilus, of the smaller kind, that is found adhering to the roots of fuci. This shell is sometimes opaque, sometimes glossy, frequently pellucid; and the wreaths either smooth, striated, ribbed, or tuberculated. It is specifically distinguished by being white, convex, aperture linear, and the first wreath much larger than the others. Schroeb.

BALTIA, an island in the Baltic Sea which gives name to it.

BALTIC Sea. A large gulf of the German Ocean, penetrating the upper part of Europe, and surrounded by the coasts of Denmark, Sweden, Russia, Germany, and Prussia. It is 600 miles in length; from eighty to 150 miles in breadth, commencing at the Danish islands of Funen and Zealand; it stretches beyond the sixty-fifth degree of latitude, including an area of surface equal to 10,000 square leagues. The two extreme divisions of this sea are the Guifs of Bothnia and Finland; the former running

east to the vicinity of Petersburg, the latter extending north till it penetrates the arctic regions.

Its access is through a narrow winding channel, or strait, on the west of the European continent, the northern part of which, communicating with the ocean on the south-west, is called the Scaggerack; the middle consists of the Great and Little Belts, and the southern part of the Cattegat. This entrance to the Baltic is sometimes called the sound. It is also connected near Pillau and Memel by narrow passages with two large lakes called the Frische Haff and Curische Haff.

The proximity of the coasts and islands, the shallowness of the waters, the flatness of the Prussian shore, the ruggedness of that of Sweden, the frequent and sudden changes of the winds, and the violent storms with which they are attended, render this sea very dangerous for navigators, although the breakers are much less formidable than those in the German Ocean. The general depth of the Baltic is from fifteen to twenty fathoms, although in some places it is much less, and in others much more. Like other inland seas the Baltic has no tides, or, if it has, they are scarcely perceptible; but a strong current generally sets towards the ocean, which, when checked by a west wind forcing the waters in a contrary direction through the straits, causes the Baltic to rise much above its ordinary level. The waters of this sea are colder and less salt than those of the Northern Ocean; from which circumstance, together with the deficiency of tides, it is usually for about three months of the year so completely frozen as to admit in many places of a passage over the ice. The ice in the southern part begins to break up in April, although the two gulfs are not generally cleared before the middle of May.

Numerous rivers, of different degrees of importance, empty themselves into this sea, which greatly contribute to the freshness of its waters, and, together with the diminished evaporation of the northern regions, occasion the current to which we have already referred. The chief of them are the Warnow, the Oder, the Peene, the Persante, the Wipper, the Vistula, the Pregel, the Memel or the Niemen, the Dwina, the Aura-Jocki, the Cano, the Torneo, the Skelleftea, the Pitea, the Lulea, the Umea, the Angermany, the Motala, the Luisna, and the Dal. The earthy particles conveyed into the bed of the Baltic by means of streams, rivers, &c. are said to cause the depth of this sea to diminish at the rate of four feet in a century; and Mr. Von Buck, in his Travels in Sweden and Lapland, observes with respect to the Bothnian Gulf, that the sea-bays have become marshes by the continual decrease of the gulf waters; and that we may soon expect to see the site of that aquatic region covered with fields and cottages.

The islands of the Baltic are numerous, one chain of which, reaching from Finland to Sweden, divides the southern part of the sea from the northern, commonly called the Gulf of Bothnia. The chief of the Danish islands forming the immediate seat of the government are Zealand and Funen. Near the shores of Livonia are the islands Dago and Oesel. Gothland and Oeland belong to Sweden; Rugen to Pomerania; and Moen, Bornholm, Falster, Alsen, Laaland, together with several others, are subject to the Danes.

Considerable fisheries are formed on some of the coasts of the Baltic, and Mr. Fischer, a naturalist of Livonia, enumerates nearly fifty different species of fish in the waters of that province; the principal of which known as articles of commerce are salmon, pike, streamlings, and lampreys. The fishes most common in the Gulf of Finland are salmon, sterlets, and carp. Sturgeon is found in the Gulf of Cronstadt, and smaller fish are taken from the gulfs and bays on the eastern parts of this sea. The herring and pilchard fisheries are considerable. Amber is also a production of this sea. It is thrown by the frequent storms on the coasts of Prussia and Courland, and is found in beds near Pillau at the depth of ninety or a hundred feet.

The general commerce of the Baltic is very considerable, since it washes the shores of Denmark, Sweden, Russia, Prussia, and part of Germany; it has a communication with the Caspian Sea, by means of the canals of Ladoga, Vyschnei-Volotschok, and Maria, thus opening facilties for conveying the commodities of northern Europe into the interior of Asia.

All vessels that pass in or out of the Baltic pay a certain duty to the Danish government, for the maintaining of light-houses, &c. This toll is received at Elsinore, where the vessels are regularly entered in the national register, a view of which for the years 1816 and 1817, will enable the reader to form some idea of the comparative importance of the Baltic commerce.

In 1816 *were registered the following vessels:—*

	From the North Sea.	From the Baltic.
America .	83	85
Bremen . .	55	56
Danish . .	408	379
Dutch . .	473	403
English . .	942	906
French . .	8	8
Hamburgh .	18	18
Hanover . .	113	111
Lubeck . .	23	22
Mecklenburg	126	127
Norwegian .	396	398
Oldenburg .	16	13
Pappenburg	22	17
Portuguese .	25	23
Prussian . .	525	489
Rostock . .	65	68
Russian . .	208	191
Spanish . .	5	4
Swedish . .	1097	945
	4608	4263
		4608
Total number that passed the Sound in 1816 . .		8871

In 1817 *were registered the following vessels :—*

	From the North Sea.
America	68
Bremen	11
Danish	463
Dutch	695
English	2088
French	22
Hamburgh	42
Hanover	212
Mecklenburgh	169
Norwegian	470
Prussian	917
Russian	197
Swedish	1044
Other nations	360
Total number of vessels from the North Sea	6758
From the Baltic the same year	6390
Total number of ships that passed the Sound in 1817	13,148

The winds are extremely variable in the Baltic; but they blow most commonly from the east in the spring, and from the west in autumn; calms are seldom experienced except in the middle of the summer. The irregular variations of the level of the Baltic somewhat resemble tides, and occur generally in autumn, when the weather threatens rain. These sensible swells frequently last for weeks together, and their maximum rise being three feet and a-half, all the low lands are inundated. On these occasions, the fresh-water lakes which communicate with the sea are rendered brackish. In the Gulf of Bothnia, the fall of the water is usually succeeded by north winds, whereas, at Stockholm, these winds follow the elevation. M. Kraft, who was professor of experimental philosophy in the imperial academy at Petersburgh, published a treatise on the inundations of the Neva at the autumnal equinox, in which he observes, that three or four days before or after the full or new moon, a violent north-west wind drives the waters of the Northern Ocean, during the influx of the tide, into the Baltic, and is immediately succeeded by a south wind in that sea and the Gulf of Finland, to the concurrent effect of which he attributes the phenomena in question; but Schultens, a learned Swede, who had closely studied the physical geography of the Baltic, attributed all the irregular elevations of this sea to the unequal pressure of the atmosphere on different portions of the water, deranging, in his opinion, their common level. He was led to this conclusion by having observed repeatedly, that when the waters were about to rise, the barometer fell, and that when the waters were about to fall the barometer rose.

The waters of the Baltic are of different degrees of saltness in different places, and in the same places at different seasons, and during different winds. The waves are short and broken, in consequence of sudden changes of wind, irregular depths, and strong currents, many of which, especially towards the north, rise thrice in the course of a year. The superior and inferior currents of the Sound are remarkable. These were discovered first by some of our own countrymen, who, being in a boat in the middle of the channel, found that they drifted towards the Cattegat; but upon letting down a loaded bucket to the depth of four or five fathoms found that their boat became stationary, and upon sinking the bucket still deeper, the boat drifted in a direction diametrically opposite to the superficial current.

By the transfer of Swedish Pomerania to Prussia, of Swedish Finland to Russia, and of Norway to Sweden, the commerce and resources of the Baltic nations have undergone a considerable change.

The following is a sketch of the staple articles of their commerce at the beginning of the present century.

Danish vessels visit the ports of Mecklenburgh and Pomerania, with horses, bullocks, butter, cheese, fish, fish-oil, colonial produce, &c.; and receive in return, thread, linen, brandy, wool, hardware, paper, &c. To Petersburgh, Riga, and Memel, the Danes send herrings and dried fish, woollen manufactures, salt of France, Spain, and Portugal, India and China goods, oysters, and dog-skin gloves; for which they receive potash, planks, fire-wood, flax and hemp, cordage, iron, copper, linens, and corn. To Holland, Denmark exports rape-seed, salted and dried fish, and timber; and receives spices, drugs, corn, pipes, and paper. To England, hides, bar-iron, kelp, furs, tar, timber, &c. The returns are, hardware goods, woollens, cottons, hats, and colonial produce. From the official account of the real value of the imports into Denmark from Great Britain, from the 5th January 1798, to the 5th January 1808, laid before Parliament, in consequence of the attack on Copenhagen, it appears, that from 1798 to 1803, they are rated about half a million; and that from 1803 to 1808, they varied from two to six millions. France receives from Denmark, horses, butter, cheese, fish, &c.; and returns salt, wines, brandy, fruits, silks, &c. The exports to Spain and Portugal are nearly the same as to France; the imports also are the same, with the addition of wool and American produce. To the Mediterranean, Denmark sends fish, salted provisions, butter, iron, &c.; and receives wines, brandy, oils, fruit, and salt. The Danes derive great profit from hiring their vessels to the ports of Italy, as their flag is generally respected by the Barbary States. The exports to the Faroe Islands are wheat, flour, brandy, tea, coffee, sugar, linens, &c.; the imports are dried and salted fish, fish-oil, feathers, hides, tallow, and worsted stockings. The exports to, and imports from, Iceland, are nearly the same; the imports from Greenland are whale-oil and bone, seal-oil and skins, eider down; the exports nearly the same as to the Faroe and Iceland Islands. Denmark has also a trifling trade to the East and West Indies.

In 1807 the Danish fleet consisted of twenty-

six sail of the line; sixteen frigates; nine sloops, and thirty gun-vessels.

The foreign commerce of Sweden is confined to what are called staple towns, which alone have custom-houses; they are Stockholm, Gottenburgh, Warberg, Halmstad, Nordkœping, Landscrona, Carlscrona, Christianstad, Carlshamm, Calmar, Westervic, Uddervalla, Marstrand, Gefle; and Abo and Wasa in Finland, now given up to Russia. The foreign commerce is supposed to be divided among these cities, as follows:

Stockholm $\frac{7}{13}$ths of exports, and	$\frac{1}{2}$ of imports.
Gotenburgh $\frac{3}{13}$ths	$\frac{1}{4}$
The other ports $\frac{3}{13}$ths	$\frac{1}{4}$

To the foreign parts of the Baltic, Sweden exports iron, steel, copper, lime, alum, and herrings, and receives corn, hemp, tallow, and hides. To Holland, iron; and receives spices, tobacco, prepared colors and papers. To England, she exports iron, timber, pitch, tar, potash, and herrings; her imports are lead, tin, leather, bear, butter and cheese; and every kind of manufacture and colonial produce. In France, Spain, and Portugal, the exports are iron, steel, copper and brass, and wines, brandy, fruits; oil and silks are the returns. To Italy and the Levant she exports all her territorial productions; and receives salts, spices, fruits, and cotton. There are from four to six ships of 600 to 1000 tons burden in the East India trade. In 1800 she had above 2000 merchant vessels of twenty tons and upwards; but the rupture with England and cession of Finland reduced them, in 1810, to 1500. In 1809 her navy was reduced, in consequence of her wars with Russia, to thirteen sail of the line, nine or ten frigates, and about 150 vessels of the flotilla.

The Prussian ports, including Dantzic, export almost the whole of the commercial productions of Poland, consisting of corn, fir planks and rafters, masts, hemp, tar, pitch, potash, hides and tallow, leather, honey and wax; besides Pomeranian oak, brandy, woollens, linens, caviar, and amber. The imports are wines, coffee, sugar, tobacco, spices, salt, iron, copper, Spanish wool, herrings, and flax seed from Livonia and Courland. Towards the close of the last century, the merchant marine of the Prussian ports on the Baltic, consisted of between 900 and 1000 ships. Salted and smoked meat, hides, wool, butter, cheese, corn, and fruits, are the exports of that part of Pomerania which belonged to Sweden and Mecklenburgh; the corn of the latter is principally taken off by England; that of Pomerania, as well as the fruits, used to go to Sweden.

The exports and imports of Russia, in the Baltic, in the beginning of this century, were

	Exports. Rubles.	Imports. Rubles.
In 1802 -	47,000,000	33,000,000
1804 -	45,000,000	27,000,000
1805 -	52,000,000	29,000,000

The number of her merchant-vessels that navigate the Baltic and the Ocean, do not exceed fifty; perhaps 100 smaller vessels carry on the coasting-trade here; and about 100 craft of twenty or thirty tons are employed in loading and discharging these vessels at Cronstadt, that cannot enter the Neva. At the close of 1807, the Russian Baltic fleet consisted of twenty sail of the line, fourteen frigates, six brigs and cutters, and nineteen small craft; and the Baltic flotilla, of twenty galleys, twenty-five floating batteries, eighty-one gun-boats, and sixteen yauls.

Baltic Port (formerly Rogerwick, from the island of Roog, on which it is built), a sea-port of European Russia, in Esthonia, now the government of Revel, at the influx of the rivulet of Padis into the Baltic. The fortifications were begun by Peter I. but discontinued by Catherine II. Were they completed, few harbours would equal it in size, depth, or security. Thirty-eight miles west of Revel, 150 north of Riga, and 220 west by south of St. Petersburgh.

BALTIMORA, in botany, a genus of the polygamia necessaria order, and syngenesia class of plants. The receptaculum is chaffy; there is no pappus; the calyx is cylindrical and polyphyllous; and the ray of the corolla is quinqueflorous. There is but one species, viz. B. recta, a native of Maryland. It is allied to Milleria.

BALTIMORE, a large, populous, and well cultivated county of the western shore of Maryland, is bounded on the east by Harford county and the Chesapeak, north by York county, Pennsylvania, south by Anne-Arundel county, southwest by a small point of Montgomery, and west by Frederick. It is thirty-six miles from north to south, and forty-five from east to west, and contained in 1820, 24,580 white, and 33,463 total population, exclusive of the city of Baltimore. In this county are found vast quantities of iron ore of the best quality, and it is watered by numerous rivers.

Baltimore, the largest city in Maryland, the third in population, and the fourth in commercial importance in the United States, is built upon a bay, which opens from the north side of Patapsco river, and affords a spacious and convenient harbour. The strait which connects this bay with the river is scarcely a pistol-shot across, and is well defended by fort M'Henry. A small river, called Jones's Falls, empties into the north side of the harbour, and divides the city into two parts, called the Town and Fell's Point, connected by bridges. At Fell's Point the water is deep enough for vessels of 500 or 600 tons, but none larger than 200 tons can go up to the city. Baltimore is well situated for commerce. It supplies Maryland, and large portions of Pennsylvania and the western states with foreign goods, and is supposed to contain nearly 70,000 inhabitants. Its rapid growth may be thus exhibited:

In 1765 the population was	300
1790	13,503
1810	46,555
1820	62,627

In 1790 the tons of shipping trading here were 13,564. In 1816, 101,960, in 533 foreign and 401 coasting vessels Baltimore cannot be considered on the whole a very healthy place, although the atmosphere is said to have become less humid of late: in autumn, the most unfavorable season, the opulent portion of the in-

habitants generally retire to their country seats in the neighbourhood. It is in general well built, most of the houses being of brick, and many lately erected displaying considerable taste. Its general plan is similar to that of Philadelphia, the streets crossing each other at right angles. Some of these are spacious, one in particular is about a mile long, and eighty feet wide, running east and west, nearly parallel to the water. The ground on the north and east of the city rises to a considerable elevation, and with the number of ships in the harbour forms a scene very interesting. The principal public buildings are a court-house, penitentiary, jail, almshouse, hospital, theatre, exchange, museum, a gallery of paintings, and a public library, possessing about 10,000 volumes. Besides these there are ten banks, and thirty-one places for public worship, belonging to nearly all the denominations of religious professors to be found in the United States. The exchange is a vast pile of building, very lately erected, 366 feet in length by 140 in breadth, comprising four wings. The Roman Catholic cathedral, the Unitarian church, St. Paul's church, the Court-house, and the Union bank, are all spacious and elegant structures. The Washington monument is another ornament to this city. It stands in an elevated situation, at a short distance above the compact part of the town. The base is fifty feet square, and twenty-three high, on which is placed another square of about half the same size and elevation. Upon this stands a column of twenty feet diameter at the bottom, and fourteen at the top, on which the statue of Washington is placed, 163 feet from the ground. Its literary and scientific institutions are very respectable. St. Mary's college was incorporated as a university in 1806, and is well endowed. It has a good library with a philosophical and chemical apparatus; and is under the direction of a president, a professor of divinity, one of moral, and one of natural, philosophy, one of the belles lettres, four of languages and mathematics, besides eight assistant tutors. The number of students is generally about 140; but they are admitted at a much earlier age than in the universities of England. The medical college was founded in 1807. It received a new charter in 1812, when it was denominated the university of Maryland, and was authorised to annex the other faculties of languages, arts and sciences, law and divinity, to that of physic; but the medical department was the only one lately in operation. The building is spacious and elegant, and the instruction is under the direction of a provost and six professors of anatomy, &c. There is another literary institution, called the Baltimore college. Four daily newspapers are published here. A great number of flour mills, forges, &c. are placed on the stream, within a few miles of the town, and add greatly to its trade. In 1814 an attack was made on this city by the British troops under General Ross, but they were repulsed and their commander slain: a stone structure, called the Battle monument, has been erected to commemorate this circumstance. Lat. 39° 17′, long. 76° 36′.

Baltimore, a town of Ireland in the county of Cork, on a head land, running into the sea, five miles north-east of Cape Clear.

Baltimore Bird. See Oriolus.

BALTINGLASS, a town of Ireland in the county of Wicklow, where are manufactures of woollen, linen, and diaper. It is situated on the Slaney, twenty-nine miles south of Dublin.

BALTUS (John Francis), a French Jesuit, born at Mentz in 1627, was librarian at Rheims, and wrote an Answer to Fontenelle's History of Oracles, printed at Strasburg, 8vo.

BALTZAR (Thomas), an eminent musical composer, and the finest performer on the violin of his time, born in Lubec. He came into England in 1658, and lived about two years with Sir Anthony Cope, of Hanwel, in Oxfordshire. He was the great competitor of Davis Mell, who, though a clockmaker, was, till Baltzar came hither, allowed to be the finest performer on the violin in England; and after his arrival he divided with him the public applause, it being agreed that Mell excelled in the fineness of his tone and the sweetness of his manner, but Baltzar in the power of execution and command of the instrument. It is said of the latter that he first taught the English the practice of shifting, and the use of the upper part of the finger-board. Baltzar shortened his days by excessive drinking, and was buried in Westminster abbey, in 1663.

BALVAG, a river of Perthshire, which runs through and connects the lakes, Lochdoine, Loch-voil and Loch-Lubnaig, in the parish of Balquhidder. It abounds in trout of different species, char, &c. and has occasionally a few salmon.

BALVAIRD, a district of Perthshire, in the parish of Abernethy, memorable for one of those monuments of ancient ingenuity and superstition, called rocking stones. It is mentioned by Buchanan, but has long ago lost its motion; being choked up with earth and gravel. There is another, still movable in the parish of Dron.

Balvaird Castle, an ancient edifice in Perthshire, among the hills, in the south-west corner of the parish of Abernethy; which belonged originally to the Murrays of Balvaird, and is now, along with the estate, the property of the earl of Mansfield.

BALUE (John), a native of France, born about 1420. His parents were in low circumstances, but by art and servility he obtained several rich preferments, and at last was made bishop of Angers, when his old patron of that see was deposed. He afterwards got a cardinal's hat from Paul II. But a correspondence which he had engaged in with the dukes of Burgundy and Bern, to the disadvantage of Louis, being discovered, he was seized and confined in an iron cage eleven years. After his liberation he went to Rome, from whence he was sent as legate by Sixtus V. to France. He died in 1491.

BALVENIE, or Balveny, a mountainous district of Scotland, in the county of Bamff, on the western side, watered by the Spey, where there is a noted rock, which produces hones and whet-stones sufficient to supply the whole island. Here are also veins of alum-stone, and springs of alum water.

Balveny Castle, an ancient fort; and

BALVENY CRAG, a remarkable hill or rock, in the parish of Mortlach in Banffshire, exhibiting, with the adjacent grounds, a great deal of picturesque rural scenery, and a pleasing mixture of the sweet and the wild.

BALUSTER, *n. s.* } Fr. *ballustre*, Span. *balauster*, Ital. *balaustrio*, Gr. βαλαυστιον, the flower in blossom of the pomegranate. Dr. Johnson, however, derives it from the Italian *balestriera*, a spike-hole, or loop-hole, to shoot out at. *Baluster* is sometimes corruptly written *banister*. A small column or pilaster from an inch and three quarters to four inches square, or diameter: their dimensions and forms are various. They are frequently adorned with mouldings; they are placed with rails on stairs, and in the fronts of galleries in churches. *Balusters*, when continued form a *balustrade*.

BALUS'TRADE, *n. s.* }
BALUS'TERED, *part.* & *adj.* }

This should first have been planched over, and railed about with *balusters*. *Carew.*

The terraces and *balustrades* built along the river, are now overgrown with roses. *Swinburne's Travels.*

Here is a vista, there the doors unfold,
Balconies here are *balustred* with gold.
Dryden's Art of Poetry.

BALUSTRADE, *n. s.*; from baluster; an assemblage of one or more rows of little turned pillars, called ballusters, fixed upon a terrace, or the top of a building, for separating one part from another.

BALUZE, (Stephen) a French writer, born in 1641, and educated at Toulouse, where he was patronised by the archbishop, after whose death he was appointed librarian to M. Colbert. In 1693 the king made him professor of canon law, and gave him a pension, with the post of director of the royal college, for writing the lives of the popes of Avignon; both of which advantages he soon lost in the fluctuation of court parties; having inserted some offensive notes in his Genealogical History of the house of Auvergne. He is much more famed for collecting ancient MSS. and illustrating them with notes, than for his own compositions. He died in 1718.

BALYUR, or BALIUR, a sea-port of Africa, in the kingdom of Dancali, about fourteen hours journey west from Babel-Mandel. It is remarkable only for being the landing place of the Abyssinian patriarch, Alphonsus Mendez, with his jesuits and Portuguese, April 3d, 1724.

BALZAC (John Lewis Guez de), born at Angoulême in 1595. Voltaire allows him the merit of having given numbers and harmony to the French prose, but censures his style as bombastic. Cardinal Richelieu gave him a pension of 2000 livres, with the titles of counsellor of state and historiographer of France. He died in 1654; and was buried in the hospital of Notre Dame des Anges, at Angoulême to which he bequeathed 3,000 livres. Besides his Letters, he wrote a work called Œuvres Diverses, i. e. on various subjects; The Prince; The Christian Socrates, &c.; and many other pieces, which have been published in two volumes folio.

BAM, BEAM, being initials in the name of any place, usually imply it to have been woody; from the Sax. beam, which we use in the same sense to this day.—*Gibson.*

BAMAH, a high place in Jerusalem, where there was an idol temple.

BAMBA, the largest province of the kingdom of Congo, in Africa. It is situated between the rivers Ambriz and Csanza; the last of which parts it from Pemba on the east, as the Ambriz does from the province of Sogno on the north. Along the sea coasts it extends on the north to the river Lelunda; and on the south to the Danda, which parts it from the kingdom of Angola. The governors of this province bear the title of dukes, and are almost independent of the king. The soil is very fertile, and would produce all the necessaries of life in great plenty, were the inhabitants industrious in its cultivation. The sea coasts produce a vast quantity of salt, which could be purified with little trouble. The fishery of the zimbi, or little sea-snail, is here carried on, whose shell is the current coin, not only in this and the neighbouring kingdom, but also in the most distant parts of Africa. Here are also said to be mines of gold, silver, quicksilver, copper, tin, and iron, but the iron mines alone are allowed to be worked. Bamba, the capital, is thirty leagues inland. The other chief towns are, Panza or Penga, in a plain between the rivers Ambriz and Loze, and Mosulla or Marsoula.

BAMBARAH, an ancient city of Sinde, in Hindostan, supposed to have been the ancient Braminabad, a city which, in the tenth century, was the residence of a dynasty of Hindoo princes, when it had regular bastions (and corresponding defences), to the number of 1400, seventy yards distance.

BAMBARRA, one of the largest and most powerful kingdoms of central Africa, bounded on the west by Kaarta and Manding, on the south by Ludamar and Beeroo, on the east by Tombuctoo and Baedoo, and on the south by Kong and Mamana. It is generally placed between 12° & 18° N. lat. and about 20° W. long. The country, though in some parts desert, is in general very fertile, and often reminded Mr. Park, he tells us, of the finest parts of England. Besides the usual productions of this part of Africa, it yields the shea tree, the kernel of which forms a species of vegetable butter. The Niger traverses it from west to east, and is navigable by canoes through the whole extent of Bambarra. The inhabitants tan sheep and goat skins, smelt iron, are pretty good smiths, and make a tolerable sort of beer of durrah, (sorghum vulgare), and the lotus-berries, (zyzyphus lotus). The land about Kabba was so well cultivated, as to remind Mr. Park of England. Their language is a dialect of the Mandingo. Their canoes are large, formed of two trunks of trees joined together, but have neither sails nor masts. Mr. Park, in travelling, passed through many populous towns. Sego, the capital, he supposed to have 30,000, Sansanding, 10,000 or 11,000, and Jenne probably more inhabitants. Baedoo is tributary to the king of Bambarra, and some accounts represent Tombuctoo also to have fallen under his dominion. The inhabitants consist of a mixture of Moors and Negroes; and though the sovereign is a Negro, the administration of many of the towns is in the hands of the Moors. That people are the most intelligent, active, and

commercial of the two; but their character is harsh, severe, and intolerant; whereas the Negroes are gentle and kind, the influence of which Mr. Park frequently experienced. The slaves brought from Bambarra are the most valued of any, both on the coast, and in Barbary. The trade with the coast is carried on by slateas, or travelling merchants; that with Barbary by the Moors from across the desert, either directly into Bambarra, or through the channel of Tombuctoo; and although Bambarra itself does not produce gold, it is the medium through which that of Manding, Kong, and Bambouk, is transmitted to many other parts of the continent. Mr. Park could form no satisfactory conjecture of the number of the inhabitants altogether. The name of this country was hardly known a few years ago. Its only traces in history are, that Mouette, in his History of Meuly Archy, (Múláï Rashìd,) tells us, when Sídí Alí, the Morábit, who had reigned at Sús, was obliged to fly into Nigritia, he took refuge with the king of Bambarra, and raised an army of negroes, whom he led into the empire of Morocco. This enabled Múlá ï Ismaîl, the successor of Rashìd (Archy) to make the conquest of Tombuktù. Thence arose the influence of the Moors over the Negro countries. Their conversion to Mahommedanism is probably of more modern date. Mungo Park's kind reception here, together with the treatment Mr. Docherd experienced, during a residence of several months on the banks of the Joliba, inspires the hope that we might establish a friendly intercourse between Ségò and the coast. Mr. O'Beirne was sent, in March 1820, by the governor of Sierra Leone on a mission to the Almámi (Imàm) of Tímbò, and found there an envoy from Dhaa, king of Ségò, sent to apologize to the governor for the detention of Mr. Docherd. Lieutenant Lang of the second West India regiment, offered to accompany this envoy back to Ségò; and the envoy quitted Sierra Leone for Fútah Jallon, in July 1821; but the final result of these measures we have not learned.

BAMBERG, a large handsome town and bishopric of Franconia in Germany, now forms part of the circle of the Maine and of Reizat, in Bavaria. It was formerly imperial, and the bishop was director of the circle of Franconia. He enjoyed the privileges of an archbishop, immediately under the pope, and was the fourth among the spiritual princes of the empire. In 1007 the emperor Henry II. created his chancellor the first bishop of Bamberg, and the succession was regular until it was secularised and assigned to Bavaria in 1803. The diocese included 1430 square miles, and more than 200,000 inhabitants. The number of towns was nineteen. The bailiwics exceeded fifty, and the villages and hamlets were estimated at 1200. The whole of Bamberg, including the secularised convents, is supposed to yield about £150,000 a year to the crown of Bavaria. The country produces plenty of corn, fruits, and liquorice, and the manufactures of chintz and iron are flourishing. The town has an university, founded in 1147; and is situated at the confluence of the rivers Maine and Reidnitz. It is in part surrounded by walls and ditches. The cathedral, with its four towers and rich treasury, the abbey of St. Michaelsberg, the ten monasteries and nunneries (now mostly suppressed), the sixteen churches, the fifteen chapels, the new episcopal residence of Petersburgh, built by bishop Lotharius in 1702, the tombs of the emperor Henry II. and his wife, of Conrade III. and pope Clement II., are all worthy of regard. A Carmelite monastery, which is now secularised, contained a library of 14,000 volumes, besides many curious manuscripts; and valuable collections of books exist in the cathedral church and in the abbey of St. Michaelsberg. This last establishment stands on a hill, and commands a delightful prospect. The university was converted into a lyceum in 1802. This place is noted for its abundant vegetable markets; not less than 400 market-gardeners being resident here. It has been laid under several contributions by the Russians and the French. It is supposed to contain 20,000 inhabitants.

BAMBERG, a town of Bohemia, situated at the foot of a mountain, in long. 16° 50′ E., lat. 49° 53′ N.

BAMBELE, in zoology. See RUTILUS.

BAMBO, in commerce, an East Indian measure, containing five English pints.

BAMBOCCIO, a celebrated painter of conversations, landscapes, cattle, &c. was born at Laeren, near Naarden, in 1613. His name was Peter Van Laer; but in Italy they gave him the name of Bamboccio, on account of the uncommon shape of his body, the lower part being one-third part longer than the upper, and his neck so short that it was buried between his shoulders. He had, however, an ample amends for the unseemliness of his limbs, in the superior beauties of his mind; he was endowed with an extensive genius; and, indeed, he had an universal taste for every part of painting. See VAN LAER.

BAMBOO, an Indian plant of the reed kind. It has several shoots much larger than our ordinary reeds, which are knotty, and separated from space to space by joints. The importance of this plant to vast regions of the East, may well excuse our dwelling on some modes of its culture, and its peculiarities.

Botanists have generally ranked it with other reeds. Linnæus, in the Systema Naturæ, describes two species, under the genus bambusa, which is characterised by scales three, covering the spikelets, which are about five flowered; calyx none, corolla, a two valved glume; style bifid; seed one. But Loureiro, who saw it in its own climate, characterises it as having flowers with six stamina; panicle diffused, with imbricate spikelets; branches of the culm spiny; calyx one flowered. We shall not discuss its minute botanical characters, as it is the practical cultivation and great utility of the plant to which we would engage the reader's attention.

A native of the warmer climates only, though often growing luxuriously beyond the tropics, the bamboo rises to the height of forty, sixty, or even eighty feet, with a slender, hollow, shining, stem. Many, however, are only twelve or fifteen feet high; and those which attain the greatest height here mentioned are rather to be viewed as over-grown. The stem is extremely slender, sometimes not exceeding the thickness of five inches

in them which are fifty feet high, and in others, being fifteen or eighteen in diameter; the whole divided into joints separated by knots or internodes, between which are distances varying from a few inches to several feet. Alternate branches spring from the base to the top; which, with the pointed leaves of the knots, give the whole tree a most elegant appearance.

It will sometimes vegetate three or four inches in a single day, and it has been seen to rise twenty feet, and as thick as a man's wrist, in five or six weeks. Its full dimensions are frequently, therefore, attained in a year; and the only change afterwards, is greater thickness and induration of the wood. Towards the root it is solid and compact; and the cells of the stem become wider in proportion as they ascend. In Malabar it is said to bear fruit when fifteen years old, and that it then dies.

There seem to be several species which have not yet been recognised by systematic botanists. An observer of the bamboos of China, in general, considers that there are nine species or varieties, and an observer of those in Cochin-China, admits of eight. The former judges the difference to consist, first, in the size and height, for there is here the greatest disparity in those that are full grown; and it has been supposed that some, if not all species, originally spring of their ultimate diameter, which receives no accession. Secondly, the distance of the knots, or length of joint, which, in certain species of full-grown bamboo, is only four inches, while, in others long and slender, they are nine or ten feet asunder. Thirdly, in the color of the wood, which is whitish, yellow, brown, pale blue, or speckled. Fourthly, in the size and form of the knots, some swelling out from the stem above and below; some encircling it like a cord; and those of the most singular kind, which do not penetrate within to interrupt the tubular part of the bamboo. Fifthly, by the surface and figure of the internodes being channelled or covered with tubercles; and a kind is said to exist, called the square bamboo. The varnished surface is also of different quality. Sixthly, the substance and thickness of the wood, which, varying without any relation to the dimensions of the plant, afford sufficient characteristics for constituting a species. The wood is either soft and tender, or very hard and of great strength; and the stem is either very thin and hollow, or almost totally filled up and solid, like other trees. But elsewhere, in Bangalore for example, this solidity is not ascribed to the difference of species, but to the tardiness of its growth in stony places. Seventhly, it is said that there are bamboos entirely devoid of branches, however old they may be; while others protrude as they spring from the earth. Eighthly, there is a great difference both in the hue and figure of the leaves, as also in their size; they are bluish, ash-color, reddish, or mottled. Some are so large as to make good fans. Ninthly, the roots, though knotty, are found in one species to penetrate into the earth like a tuft of filaments.

This plant is to be found growing wild in most parts of the east, and is resorted to as occasion requires. It is regularly cultivated in plantations in the more genial climates, and preserved in others in green-houses, &c. It succeeds best in low sheltered spongy grounds, but the immediate contact of the root with water is said to be fatal to it. They propagate it by shoots, deposited in pits at the close of autumn or commencement of winter, eighteen inches or two feet deep; and if it be designed to obtain bamboos of considerable size, the scyons are cut over as they spring up. It flourishes but in large plantations, as the plants yield considerable shelter to each other in their progress. As they run from the ground they are propped up and trained with rods of a proper height; and if complete plants, are cut over, in order to obtain suitable shoots, which are chiefly sought after. This, also, makes the root strike out and take a secure hold of the ground. The plantation, in rainy seasons, is generally drained by a ditch, as it decays very fast in too damp grounds. To obtain good Bamboos, it is not uncommon to take a vigorous root with firm wood, and transplant it, leaving only four or five inches above the joint next the ground. The cavity is then filled with a mixture of horse-litter and sulphur. Sometimes the shoots are destroyed at an early stage during three successive years; and those springing in the fourth are then said to resemble the parent tree.

The earliest shoots of this plant are edible, and are served up at table in autumn like asparagus; in a similar manner with that vegetable, also, they are earthed over to keep them: they are also salted and eaten with rice. A fluid of grateful taste and odour is yielded from the hollow joints as the plant grows up, affording an agreeable beverage. In its further progress this becomes a concrete substance called tabaxir or tabascheer, highly valued for its medicinal properties, and apparently a species of siliceous earth. It resists the impression of acids, is indestructible by fire, and with alkalies forms a transparent glass. A decoction of the leaves of the bamboo is recommended in the east for coughs and sore-throat; the bark for fever and vomiting; the buds as a diuretic; and a compound of the root with tobacco-leaves, betel-nut, and oil, forms an efficacious ointment. Many of the poorer classes in the most populous countries subsist entirely upon it in times of scarcity. The Hindoos eat its seeds roasted, mixed with honey as a delicacy, equal quantities of each being put into a hollow joint, coated externally with clay.

From the copious draught which a joint of the bamboo naturally yields, mankind are taught its use as a vessel for carrying water, and in some places no other bucket is employed. Many eastern nations build their houses solely of the bamboo-wood; entire, it forms their posts or columns; split up, it serves for floors or rafters; or, interwoven in lattice-work, it is employed for the sides of rooms, admitting light and air. The roof is sometimes, also, of bamboo, for which two of its species are described to be specially adapted; and when split, which is accomplished with the greatest ease, it can be formed into lath or planks. Vessels of all kinds are framed out of it likewise, and fitted for sea. The hull is taken from the stem; and some of the strongest plants are selected for masts of boats. In Bengal, a boat of four or five tons may be

furnished with both mast and yard from the same bamboo, at the cost of threepence; and the masts of larger vessels are sometimes formed by the union of several bamboos built up and joined. Those of considerable dimensions are used in the higher yards of larger ships, for which, by their great strength and lightness, they are well adapted.

This important plant is also employed in the construction of agricultural and domestic implements; and in all materials and implements required in fishery, with the exception of hooks and nets. In Thibet bows are made of it, by the union of two pieces with many bands; and in the same country also, it is employed for pipes, in transmitting water, for several miles, to reservoirs or gardens. A single joint is sufficiently capacious to serve as a bucket; and in some places, no other is used. In the south-west of Asia, a species of slender growth supplies writing-pens or reeds. Baskets, cages, hats, and various ornamental articles, are to be added to the catalogue of its extensive uses. By a particular process in bruising and steeping the wood or bark, also, a paste is procured that is made into paper. In short, as it has justly been observed, from its very origin until its decay, it never ceases to produce something beneficial—all that composes a bamboo is profitable, of whatever species it may be. The artists of China have each made their choice, and in the works they produce, show the advantage they have derived from it. Its uses are so numerous, so various, and so beneficial, that it is impossible to conceive how China could now dispense with this precious reed. It is no exaggeration to affirm, that the mines of this vast empire are of less importance to it than the possession of the bamboo.

Bamboo, in botany, the trivial name of a species of arundo. See Arundo.

Bamboo Habit, a Chinese contrivance by which a person who does not know how to swim may easily keep himself above water. The following account of it is taken from a letter to the author of the Seaman's Preservative. 'In the year 1730 I was passenger in a ship from Batavia to China, burden about 400 tons, called the Pridae, Francisco Xavier, commander, freighted by the English, Chinese, and Portuguese. Near the coast of China, we met with one of those storms called a tuffoon (tau song), or a great wind, which carried away all our masts, bowsprit and rudder; and in our hold we had six feet of water, expecting every moment the ship would founder. We consequently were consulting our preservation; the English and Portuguese stood in their shirts only, ready to be thrown off; but the Chinese merchants came upon deck, not in a jacket, but I will call it a bamboo habit, which had lain ready in their chests against such dangers; and it was thus constructed; four bamboos two before and two behind their bodies, were placed horizontally, and projected about twenty-eight inches. These were crossed on each side by two others, and the whole properly secured, leaving a space for their body; so that they had only to put it over their heads, and tie the same securely which was done in two minutes, and we were satisfied they could not possibly sink.'

BAMBO'OZLE, *v.* } A cant word not used,
Bambo'ozler, *n.* } says Johnson, in pure,
Bambo'ozling. } or grave writings. To delude, to mislead, to cheat, to cozen, to deceive, to beguile. Synonymous with another cant term, to *humbug*, or to take in.

After Nic had *bamboozled* John awhile, John called for counters. *Swift.*

There are a set of fellows they call banterers and *bamboozlers*, that play such tricks. *Arbuthnot.*

But, says I, sir, I perceive this is to you all *bamboozling*; why you look as if you were Don Diego to the tune of a thousand pounds. *Tatler*, No. 31.

BAMBRIDGE, or Bainbridge (Christopher), L.L.D. archbishop of York, and cardinal, was born at Hilton in Westmoreland, and educated at Oxford. He rose gradually from being rector of Aller, prebendary of Salisbury, dean of York and Windsor, &c. to one of the highest dignities of the church. In 1495 he was elected provost of Queen's college. In 1507 he was appointed bishop of Windsor, and next year archbishop of York. He was employed in different embassies to foreign princes; particularly to the emperor Maximilian I., Charles VIII. king of France, &c. But he chiefly distinguished himself in the embassy from Henry VIII. to pope Julius II. who created him a cardinal, with the title of St. Praxede, in 1511, and appointed him legate of the ecclesiastical army, then besieging Bastia. In return, our new cardinal prevailed upon Henry VIII. to take part with the pope against the king of France. There are extant in Rymer's Fœdera, two letters; the one from cardinal Bambridge to king Henry VIII. respecting the pope's bull, giving him the title of Defender of the Faith; and the other from cardinal Sinigalli, to that monarch, acquainting him he had delivered the instrument to cardinal Bambridge. He died at Rome in 1514, being poisoned by a domestic, in revenge for his having struck him.

BAMBOROUGH, or Bambrough, a parish and castle of Northumberland, on the sea coast, five miles east from Belford, and 329 north from London. It was once a royal borough, and sent two members to parliament. The castle stands upon a rock, almost perpendicularly to the sea, and 150 feet above its level. It is accessible only on the south-east side. On this spot, according to historians, stood a palace of the Northumbrian kings, built by Ina in 559. In the reign of queen Elizabeth, Sir John Forster, warden of the marches, was made governor of it after the battle of Musselburgh; and subsequently, to his great credit, his relative, Crew, bishop of Durham, purchased and bequeathed it to charitable uses. In 1757 the trustees of this charity repaired the great tower, and formed the upper buildings into granaries, for the sale of corn to the poor, at a cheap rate. A constant watch on the top of the tower is said to be kept, whence signals are made when any vessel is discovered in distress, and boats are able to put off from Holy Island when none from the land can pass the breakers. During a storm horsemen patrol the coast, to the extent of eight miles, from sun-set to sun-rise, to give notice in case of shipwreck to the castle, and where the unfortunate many finds an hospitable asylum. Upwards of three

boats are always in readiness for this good work. At the expense of this fund, the last offices are also performed over the bodies of such persons as may be cast on shore. Within the castle walls are to be found a school, a valuable library, an infirmary, which receives more than 1000 patients yearly, and a dispensary.

BAMBOUCH, or Bambych, called also Magog and Hierapolis, an ancient city of Syria, not far from the Sejour, and fifty miles distant from Aleppo. It is situated in a valley, watered by a stream conveyed by aqueducts to the town from a hill twelve miles south, and in some parts by a channel twenty feet under the earth. The ancient town was surrounded by walls above thirty feet high, and nine feet thick, strengthened by towers at the distance of fifty paces from each other; it was entered by four gates fifteen feet wide, defended by a tower on each side, cased, as they still appear, both externally and internally, by hewn stone; the top was gained by a flight of steps built on arches. Various remains of the structures and sculptures of different nations and dates appear here.

BAMBOUK, or Bambuc, a country of Africa, which the Abbe Raynal states to be situated in the interior, under the twelfth or thirteenth degree of north latitude. It is not subject to a particular king; but governed by village lords, called farims. These hereditary and independent chiefs are obliged to unite for the defence of the state, when it is either attacked as a community or only in one of its branches. The territory of this aristocratical state is dry and barren. It produces neither maize, rice, nor pulse. The insupportable heat it is subject to, proceeds in part from its being surrounded by high mountains, which prevent the wind from refreshing the air. The climate is as unwholesome as it is disagreeable; vapors, which continually issue from the bowels of a soil replete with minerals, rendering it unfit to live in, especially to strangers. Its gold has made it an object worthy of notice; gold, which in the eyes of the covetous man seems to compensate for all the evils of nature, though in reality it increases them Sensible and judicious merchants, adds this author, have chosen to limit themselves to a commerce much more important, which is that of slaves.

Almost all that is known of this state is derived from a Frenchman named Compagnon, who passed a year and a half there in the beginning of the last century. Labat, Afrique Occidentale, iv. 5. He describes it as divided into three provinces, Bambouk Proper, Kincodon, and Satadore, each of which abounds with gold, but the first most particularly. The principal repositories are at Rakkon, Semayla, Hambia, and Hombadyria, at each of which appears a conical hill of moderate elevation, every part of which contains gold, combined with earth, sandstone, lapis lazuli, &c. They obtain the metal by digging deep pits, and delivering the earth to the women, who cary it to the streams, and separate the gold by the simple process of agitation in water, after the manner described in Mr. Park's second journey. When the other substances are hard, the whole is previously pounded. Those pits being only six feet square often fall in, and bury the workmen. Bambouk appears to be the main source of that large quantity of gold which is on one side conveyed down the Gambia and Senegal, and traverses the desert on the other into Barbary. The population is almost entirely of the Mandingo race. It is remarkable, however, that although they profess Mahommedanism, no marabout or priest is suffered to reside amongst them: it is said they were all expelled some years since, being detected in a conspiracy to seize the government. It is also said that they are very jealous of European visitors; and that the Portuguese and French have each in vain endeavoured to establish themselves here.

BAMBYCE, an ancient city of Parthia, called also Hierapolis: famous for the rich and magnificent temple of Atergatis, which was plundered by Crassus.

BAMEENY, Vamani, an island lying off the coast of Chittagong, in the province of Bengal, formed by the sediment deposited by the great River Megna. It is twelve miles long by about five broad. The East India company have here an extensive establishment for the manufacture of salt, of which they retain the monopoly.

BAMFF, or Banff, a county of Scotland, comprehending Strathdovern, Boyn, Enzie, Strathaven, Balvenie, and part of Buchan, extends fifty miles from east to west, and thirty in breadth from north to south. On the south it is separated from part of Buchan by the river Ugie; on the east it is bounded by the Deveron and the German Ocean; on the west by the Spey and the county of Moray; on the south-west by Badenoch and the Braes of Mar; and on the north by the Moray Frith. The face of the country is agreeably diversified with hills and dales, woods and rivers; and exhibits many seats and plantations. The air is pure, the climate healthy, and the soil fertile, producing plentiful crops of corn. The pasture grounds feed sheep, cattle, and horses; the arable lands produce plenty of corn; while the rivers and sea supply great quantities of fish. The manufactures of this county never were considerable; and those of yarn and cloth, as well as the cotton manufacture, have declined of late. Coarse woollen stuffs are made for the use of private families and tan-works; breweries, rope works, &c. have been established on a small scale. The principal exports of Bamff are grain, fish, butter, cheese, yarn, and linen; while the imports are flax, hemp, leather, iron, coals, wood, and wine. Various minerals have been found in different parts of the shire; and a piece of amber, as large as a horse, was once cast ashore on the beach. Gordon castle, and several other seats of the duke of Gordon are situated in this county. It sends a member to parliament. Here are numerous remains of antiquity, consisting of cairns and tumuli, exhibiting the triumphs of our ancestors over the Danes, whose sculls they have built into the solid walls of churches. Also the ruins of several forts, castles, and monasteries. The valued rent of the county is £79,200 Scots; and in 1811, according to the assessment of the property tax, the real gross rent of the lands was £79,396 3*s*. 4*d*., and of the houses £5514. 2*s*. sterling.

Bamff, the capital of the county, is pleasantly

situated on the south side of a hill, at the mouth of the Deveron. A fine bridge of seven arches crosses the river. It has several good streets; of which that with the town-house in it, adorned with a new spire, is very handsome. This place was erected into a borough by a charter from Robert II. dated October 7th, 1372, endowing it with the same privileges, and putting it on the same footing with the burgh of Aberdeen; but tradition says it was founded in the reign of Malcolm III. The harbour is bad, as the entrance at the mouth of the Deveron is very uncertain, being often stopped by the sands, which are continually shifting in great storms; the pier is therefore placed on the outside, and defended by a half-moon battery of eight guns. Manufactories of thread, cotton, and stockings, are carried on to a considerable extent, and great quantities of salmon are annually exported. About Troop-head some kelp is made; and the adventurers pay the lord of the manor £50 yearly for the liberty of collecting the materials. Near the town is a magnificent seat of the earl of Fife. It lies in a beautiful plain washed by the Deveron, the lofty banks of which, clothed with wood on the opposite side, afford a delightful contrast to the soft vale beneath.

Bamff has two fairs, on the first Tuesday in February, and the third Tuesday in December, both old style. Long. 2° 15′ W., lat. 57° 35′ N. The parish is about six miles in length, and two in breadth. The sea coast is bold and rocky. A great part of the parish, though it might be easily converted into arable land, is occupied in pasturage. Population about 3000.

BAMIAN, an ancient city and province of Asia, to the north-west of Cabul, ten days journey from Balkh. It is remarkable alike for having been once the metropolis of Buddhism, and for its dreadful catastrophe, when taken by Jenghiz Khan in 1221. At that time it belonged to Sultan Jalallodin, the last of the famous Mahmud of Gazni's race. Jenghiz was about to attack Gazna, that prince's capital, but was stopped by the garrison of this place, which he had hoped would give him no trouble. In this, however, he was disappointed. The people had for a long time expected an attack, and had therefore ruined the country for five or six leagues round, while the peasants had carried away the stones, and every thing that could be of use to the besiegers. Accordingly Jenghiz Khan having erected wooden towers, and planted his engines upon them, was obliged to suspend his operations, till millstones and other materials could be brought from a great distance. The walls of the city were very strong, so that the engines of the Moguls made little impression; and the garrison, making frequent and furious sallies, cut off whole squadrons of his troops, and frequently overthrew his towers and engines. This so exceedingly chagrined Jenghiz that he swore to be revenged. To exasperate him yet farther a young prince, his grandson, was accidentally slain in the siege. At last, therefore, by the numberless multitude of the Moguls, who continued their attack without intermission, the city was taken, its walls had been ruined in many places, and the bravest soldiers and officers of the garrison slain in its defence. The mother of the young prince, who had been killed, entered with the troops, and caused the throats of every one of the inhabitants to be cut, we are told, without exception, and even gave orders to destroy the women with child, that not an infant might be left alive! Further, to gratify the rage of this inhuman monster, the buildings were all levelled with the ground; the cattle, and every living creature, destroyed; insomuch that the hardened Moguls themselves gave this place the name of Maubalig, or the unfortunate city. A castle has since been built out of its ruins.

The place now appears surrounded with grottoes, or caverns (several of which are inhabited), excavated from an insolated mountain. Many of these abound with carved work and sculptures, and the remains of ancient paintings. Mr. Wilford (As. Res. vi. 462), says 'it was formerly called Budd'h Vámíyan, 'the most beautiful and excellent,' (a name still frequently given it by the followers of Buddha), and maliciously corrupted by the Mussulmans into But-Bámiyàn, 'idolatrous Bámiyàn.' It has been called by historians the Thebes of the east; and here are two colossal statues, seventy-five feet high, hewn out of the rock, standing in alto relievo against the wall of the niches in which they are enshrined. A third, of less colossal dimensions, being only fifteen cubits high, stands at a small distance. The orthodox say they represent B'hima and his family; the Budd'histi maintain that they are Sháhámà and his disciples Sálsálà; while the Mussulmans affirm that they are no other than Adam and Eve, in the shape of Cayúmans, and his consort. Between these opinions it would be presumptuous for us to decide. A door, between the legs of the largest, opens into a temple still served by a few Brahmins. The province contains several villages, and decent towns.

BAMIER, a plant common in Egypt. It produces a pyramidal husk, with several compartments, of the color of alemon, and filled with musky seeds. The husk dressed with meat is a wholesome food, and of a very agreeable flavor. The Egpytians make great use of it in their ragouts.

BAMMAKOO, a considerable town of Bambarra, in Africa, situated on the Niger, at the point where the navigation higher upwards is interrupted by cataracts. It carries on a great trade in salt. It is 180 miles south-west of Sego. Long. 5° 48′ W., lat. 12° 50′ N.

BAMOO, a province on the north-east frontier of the kingdom of Ava. Also a town situated on the river Irrawaddy, 170 miles N. N. E. of Ummerapora, where a considerable trade is carried on with the Chinese.

BAMORI, a village in Northern Hindostan, where an annual fair is held, to exchange the productions of the mountaineers and the inhabitants of the low countries.

BAMOTH-BAAL, one of the towns of the tribe of Reuben, which seems to have had a temple of Baal on an eminence; lying eastward, near the river Arnon, and the territory of Moab. Jerome calls it Bamoth, a city of the Amorites beyond Jordan, in the possession of the sons of Reuben. Whether it was the same with that mentioned in Numbers xxi. is doubtful, but it appears to have been the place of encampment of the Israelites, and of Balaam's first station

where he had the first view of the rear of the people

BAMPFYLDE (Sir Charles Warwick), a baronet of one of the oldest and most distinguished families in Devonshire. He sat in seven parliaments for the city of Exeter, was well known upon the turf, and moved in the first circles of fashion. He received his death from an assassin named Morland, whose wife had lived in his service. The shocking act was perpetrated almost at his own door in Montague Square, where the murderer waited his approach, and after a short conversation, first discharged a pistol at his victim, and with a second blew out his own brains. April 19th, 1822.

BAMPLASOY, a town of Lower Siam, on the Gulf of Siam. Long. 101° 36′ E., lat. 3° 35′ N.

BAMPTON, or BAMPTON IN THE BUSH, a market town and parish of the county of Oxford, situated on the river Isis. It has a spacious church, a charity school for twenty children, and the remains of an ancient castle. Trade and manufacture are carried on here in leather articles to a considerable extent. Population 1232. Distant ten miles from Oxford, and sixty-nine and a half W.N.W. from London.

BAMPTON, a market town and parish of England, in Devonshire, situated on a branch of the Exe called Batham, or Batherm, where the Romans are supposed to have had artificial hot-baths, and there is still a chalybeate spring in the vicinity. It carries on a small manufacture of serge and pottery. John de Bampton, a Carmelite monk, who first read Aristotle at Cambridge, and died in 1361, was a native of this town. A battle was fought here in 614 or 620, between the West Saxons and the Britons, wherein the latter suffered great loss. Population 1452. Distant from Tiverton five miles north, and 164 west of London.

BAN, *v.* & *n.* } Germ. *bannen*, *bann*. A word
BAN'NING. } exceedingly various in its applications. Its primary meaning seems to be that of a public proclamation; whether the matter involved were agreeable or otherwise. It generally signifies, however, proclamation with authority; to command, or to forbid; to excommunicate, and to curse.

> I bar it in the interest of my wife;
> 'Tis she is subcontracted to this lord,
> And I her husband contradict your *bans*.
> *Shakspeare.*

> Ah, Glo'ster, hide thee from their hateful looks;
> And in thy closet pent up, rue my shame,
> And *ban* thine enemies, both mine and thine. *Id.*

> Bold deed to eye
> The sacred fruit, sacred to abstinence,
> Much more to taste it, under *ban* to touch.
> *Milton.*

> To draw her neck into the *bans*. *Hudibras.*

Shall we think that it *baneth* the work which they leave behind them, or taketh away the use thereof?
Hooker.

Before these Moors went a Numidian priest bellowing out charms, and casting scrowls of paper on each side, wherein he cursed and *banned* the Christians
Knolles.

He proceeded so far by treaty, that he was proffered to have the imperial *ban* taken off Altapinus, upon submission. *Howell.*

BAN OF THE EMPIRE, a public censure, by which the privileges of any German prince are suspended.

BAN, in commerce, a sort of smooth fine muslin, which the English import from the East Indies. The piece is almost a yard broad, and runs about twenty yards and a half.

BANNS OF MARRIAGE. The instrument which publishes the bands or obligations of matrimony into which the parties enter, to the end that if any man can say against the intention of the parties, either in respect of kindred or otherwise, they may take their exception in time. And, in the canon law, 'banna sunt proclamationes sponsi et sponsæ in ecclesiis fieri solitæ.' Among the variety of applications, says a writer in the Encyclopædia Metropolitana, all deducible from its primary meaning, *ban* signified a solemn assembly of the nobility, to attend the king in arms, summoned by proclamation. To be put under the *ban of the empire*, in the ancient German constitution, was to be interdicted from all intercourse with society. The imperial *ban* was directed against cities, as well as persons, and deprived those who incurred it of all their dignities and privileges.

BANAGHER, a town of Ireland, in King's County, seated on the Shannon, over which it has two bridges. It is about fifteen miles south of Athlone, and sixty-six from Dublin.

BANAGROTH, a town of Ireland, in King's County, Leinster.

BANANA TREE. See MUSA.

BANARES, or BENARES (Varanasi), a large district or zemindary in the province of Allahabad, situated principally between the twenty-fourth and twenty-sixth degrees of north latitude. When ceded by Asoph ud Dowlah, the Nabob of Oude, in 1775, it was divided into six and a half pergunnahs, containing an aggregate of 12,000 square miles, of which 10,000 are a fertile and richly cultivated flat, on both sides of the Ganges. The chief districts are Benares, Gazypoor, Jionpoor, and Chunar. In the Institutes of Acber, A. D. 1582, Abul Fazel describes it as follows: 'Sircar Benares, containing eight mahals, measurement 136,663 beegahs, revenue 8,169,318 dams.—Seyurghal 338,184 dams. This Sircar furnishes 830 cavalry, and 8400 infantry.' The gross revenue in 1813 amounted to 4,562,707 rupees; £570,338. 7*s*. 6*d*. of our money. At Chunár-gur'h, Mirzá-púr, and Gházípúr, are large stone quarries; at which, on paying a moderate duty, any one may work; and the receipt for such licenses in 1816 amounted to 37,086 rupees, or £4635. 15*s*.

The atmosphere of this province is severe, and in winter renders fires indispensable; but for three months after March, becomes so heated by the setting in of the hot winds, as to destroy all verdure, and would probably prove destructive to all European artificial grasses, were the cultivation of them introduced. Garden-stuff of different kinds for Europeans, flax for oil, grains, and sugar, are nevertheless produced by the natives during the cold season. The use of flax as

an article of clothing is not here understood. Every field of barley contains a mixture of grain or peas; and at the distance of six or ten feet is planted a beautiful yellow flowering shrub, used in dyeing.

The principal manufactures are plain and flowered muslins, chiefly made in the northern, baftas in the western, and sanaes in the eastern parts of the province. Tissues, brocades, and ornamented gauzes, are articles of general manufacture, from the Ganges and Goomty to the Caramnassa and Soane. The apparatus for the sugar manufactory is extremely simple; a stone mortar and wooden pistern, turned by two bullocks, constitute the most expensive part of the operation; the boiling pots are of common earthenware; the whole, in value, not exceeding twelve rupees. Salt is manufactured at Banares. Indigo and opium are annually raised and exported from many parts of the province.

The country is well supplied with water, and washed by several noble rivers and streams; of which the Ganges, the Goomty, the Caramnassa, and the Soane, are the most important; the two latter forming the natural boundaries of the province. The space from Patna to Buxar, Gazypoor, Banares, and Mirzapoor, presents a beautiful and highly fertile country, adorned with numerous clumps of mango-trees, which give the whole region the appearance of a forest, affording a shady retreat for cattle. The territory on both sides of the river, above Mirzapoor, formerly belonged to the Nabob of Oude, and exhibited a strong contrast to the flourishing state of the Banares districts, which in point of prosperity, perhaps excel all others in India, with the exception of Burdwan in Bengal.

The population of the province, according to the census taken in 1801, under the direction of the Marquis Wellesley, at that time governor-general, amounted to three millions, in the proportion of one Mahommedan to five Hindoos. The code of regulations for Bengal has, with very little alteration, been extended to Banares. The Brahmins, however, from the great veneration in which they are held by the people, are indulged with some peculiar privileges. The punishment of death in capital offences is commuted for transportation, and the process against them in criminal charges is somewhat different from that of Hindoos of a lower caste. Several evil practices of the Brahmins were, nevertheless, at the same time suppressed; as, the holding out the threat of obtaining spiritual vengeance on their adversaries by suicide; the exposure of the life, or actual sacrifice, of their own children, or near relations; occurrences which are now subject to the usual course of criminal law. One tribe of Hindoos, residing in the province, called Rajcoomars, were accustomed to destroy their female infants, from the difficulty experienced in getting them suitably married. Mr. Duncan, the resident, prevailed on them to desist from this practice; and the observance of it subjects the offender to the ordinary punishment of murder.

The most remarkable events in the history of this province are the following:—Musuram, the grandfather of Cheit Singh, possessed originally but half the village of Gungapoor; by additions to which, he laid the foundation of the zemindary, or lordship, of Banares. At his death, in 1740, his son and successor Bulwant Singh ascended the throne; and after a reign of thirty years, increased the provincial territories to their present dimensions. Cheit Singh Rájà received the zemindary in 1780; but from his refractory conduct, was expelled the province by Mr. Hastings, within one year after his accession. He lived at Gwáliyár till 1810, and his lands are still held by a collateral branch of the same family, with an annual profit exceeding ten per cent. on the revenue, derived from them by the government. *Tennant, J. Grant, Colebrooke, fifth Report, Hamilton, &c.*

The chief towns in the Banares zemindary, are Banares, in Sanscrit, Várá Nashì, from the two streams, Várá and Nashì. It lies in lat. 25° 30′ N. and long. 83° E., on the northern bank of the Ganges, which here forms a fine sweep of about four miles in length. Its elevation above the water is evident from the G'háts, or landing places, composed of large stones, to the height of thirty feet, and are supposed to have been erected by pious Hindoos, as acts of public charity. The town rises like an amphitheatre from this basis on the external curve of the river, and may be seen at once from the opposite shore, which forms an extensive level.

The great narrowness of the streets gives it the usual appearance of an Asiatic town, and the houses, which are six stories high, close to each other have terraces on their summits, and extremely small windows, to keep them cool and prevent inspection. The opposite sides of the streets in some places approach to each other so closely as to be united by galleries. The number of houses built of stone and brick, are stated at 12,000, those of mud at 16,000. The inhabitants are more than 600,000, of whom one tenth are Mahommedans; and during the great Hindoo festivals, the concourse is immense. Càsi, or Cáshí, the splendid, as the Indians commonly call it, is one of the most sacred places in the whole of India; the country for ten miles round is thought holy land, and the famous lingam, supposed to be Siva, or Mahà-Déó himself, in a state of petrifaction, attracts the veneration and alms of myriads. The representatives of this invaluable relic in different parts of the city are said to be at least a million, and one pilgrim is reported to have travelled sixteen times from Banares, anciently Cási, to Raméswara or Ramisseran, opposite Ceylon. Devout Hindoos come to end their days at Banares, the same as pious Jews go to die at Jerusalem: and so great is the holy sanctity of the place, that to die there is sufficient to preserve even beef-eating Englishmen from the black realms of the Indian Pluto, the Hindoo Patálá. One Englishman the Brahmins say did get to heaven by departing this life at Banares, and his meritorious decease is said to have been still further sanctified by the bequest of a large sum of money for the erection of a temple under the direction of his spiritual solicitor. So holy is this celebrated city that many foreign Hindoo Rajahs have vakeels or delegates residing here, who perform for them the requisite sacrifices and ablutions.

Cási, the ancient name of this city, is still retained in preference to its modern name Banares, although there are no notices concerning it in the works of ancient geographers. It is remarkable that they should omit this celebrated city, and at the same time specify Mathura or Methora and Clisobara, which are near the Jumna.

Banares is regarded as the ancient seat of Brahminical learning; and within the last century the moon beams of science have in some measure relieved the intellectual gloom which lowered upon the dark hemisphere of the inhabitants. Jaya-Sing'ha, Rájà of Amb'hér, at the close of the seventeenth century erected an observatory in this city. (Philosophical Transactions, vol. lxvii; and Asiatic Researches.) A college has also been erected by the British government, for the instruction of Hindoos in their own literature; but the influence and prejudices of the Brahmins have prevented any considerable diffusion of learning among the natives. Reading and writing are however taught here, upon a plan strongly resembling that of some modern institutions in our own country. The boys are collected on a smooth flat of sand, on which, with the finger or a small reed, they trace the letters in the sand, and learn to pronounce them at the same time.

The number of pious foundations in Banares is very great. Hindoo temples are scattered all over the city and the surrounding plain. The principal one is called Viswéswar or Bisésar, and is dedicated to Siva, whose sacred relics it contains. Aurengzebe, to mortify the Hindoos, built a splendid mosque on the highest ground of the city, and what was worse than all, on the sacred ruins of a Hindoo temple, which was destroyed to make room for it. The minarets of this edifice command an extensive view of the city, and open some of the finest prospects of the surrounding country.

The handsome houses of the English exhibit an unusual nakedness from the want of trees; but this in India is absolutely necessary, from the swarms of mosquitoes to which they afford a favorite resort. The Rajah resides at Ramnagur on the opposite side of the river, five miles from Banares. In this city are upwards of 8000 houses occupied by mendicant Brahmins, who have nevertheless considerable property of their own. Europeans in this place are few, consisting chiefly of a judge, collector, and registrar, a few other civil servants connected with the company's establishment, together with a few private merchants and planters.

Banares is the chief mart for gems and diamonds, which are brought principally from the Bundelcund country. Merchants and bankers are numerous and wealthy, arising from the great traffic of which this city is the site. The land is extremely high priced, and law suits respecting it are unceasing. The division of the court of circuit comprehends the following districts. 1. Mirzapoor. 2. Allahabad. 3. Bundelcund. 4. Juanpoor. 5. Gooracpoor. 6. City of Banares.

Cási does not appear to have been known to the Greeks, and was probably subject to the Hindoo sovereignty of Canój. In the year 1017 Sultan Mahmood of Ghizni took possession of it, together with the town of Casum or Casuma, now Patna, and went as far as the country of Ouganam or Unja, west of the Cossimbazar river. The following year he overran these countries a second time, and penetrated as far as Kisraji, Cach'ha Raja, or Cooch Bahar, from which period the Hindoos in this part of India remained unmolested by the Mahommedans till the close of the twelfth century, when it was finally included within the Mogul empire. In 1775 Banares was ceded by the Nabob of Aud'h or Oude, since which for the most part it has enjoyed uninterrupted tranquillity; and the inhabitants are fully sensible of the advantages they derive from living under the British government, with respect to the security of their persons and property.

On the 14th of January, Mr. Cherry the resident, and three other English gentlemen, were treacherously murdered by Vizier Ali, the deposed Nabob of Oude, and spurious son of the late Asoph ud Dowlah. Mr. Davis would also have fallen a sacrifice had he not, from the top of a narrow winding stair-case, on the flat roof of the house, defended himself and family with a short spear till assistance could be procured.

The travelling distance from Banares to Calcutta by Birbhoom is 460 miles, by Moorshedabad 565, from Buxar seventy, Allahabad eighty-three, Calpy 239, Kanoge 259, Bareily 345 miles. See *Lord Valentia, third Register, Wilford, and Rennel.*

BANBURY, a borough and market town in the hundred of that name, Oxon, seventy-one miles from London; containing 3400 inhabitants. It stands on the river Charwell, on the road from Buckingham to Bridgenorth, and was first made a borough by queen Mary. Its privileges were afterwards confirmed and enlarged by James I. and George I. It is now governed by a mayor, high steward, recorder, six burgesses, and thirty assistants; has a town-clerk, and two serjeants-at-mace, and returns one member to parliament. The land in this neighbourhood is particularly fine pasture, and the town was noted, in Camden's time, for the excellence of its cheese, as it is now for cakes and ale. When Holland was employed in translating the Britannia, Camden visited the printing-office, and found that to his own observation, that Banbury was famous for cheese, the translator had added cakes and ale. Thinking this remark too trifling, he changed the last word into zeal; and this gave much unintentional offence. In his MS. supplement to the Britannia, in the Bodleian library, is the following note: 'Put out the word zeale in Banbury, where some think it a disgrace, when as zeale with knowledge is the greatest grace among good Christians.' In the adjacent fields Roman coins have often been discovered, and the pyrites aureus, or golden fire-stone. A castle was built here in 1125, which was entirely destroyed in the civil wars of Charles I. Plush is manufactured here, and the trade of the town is greatly enhanced by the proximity of the Thames and Severn canal. Here are held, annually, seven fairs: those for hiring servants are called mop fairs. The church, having been of late rebuilt, is large though not handsome. The market on Thursday is reckoned the best in the

county for corn, cattle, and all kinds of provisions.

BANC, or Benca, in law, a tribunal, or judgment-seat: Hence,

Banc, Common, means the Court of Common Pleas; and

Banc, King's, the Court of King's Bench.

BANCA, an island of the Indian Ocean, between Sumatra and Borneo; from the first of which it is separated only by a narrow channel. It is celebrated for its tin mines, the annual profit of which to the Dutch is estimated at £150,000. It is mountainous and woody. There are seven mines, which give employment to 25,000 men, originally a Chinese colony, and nominally under the direction of the sultan of Palembang, but in reality working for the profit of the Dutch East India company. The metallic sand is said to yield 70 per cent. Very little is sent to Europe; the Chinese are very skilful in adulterating it. This island, which had been captured by our forces during the late war, with the rest of the Dutch possessions in the East Indies, was given up at the peace of 1814. It had been formally ceded to us by Najmu'ddîn, sultan of Palembang, in 1812, on condition of his being placed under our protection, but this stipulation was disregarded by the Dutch authorities in Java in 1818; and they have since that period been at war with the sultàn. The straits of Banca afford a safe passage with a favorable monsoon; but as shoal water sometimes occurs, and there are occasionally coral reefs, they require great care and attention in navigating them. The Banca islands in 2° 22′ S. lat., and 105° 41′ E. long., afford shelter from S. W. by S. to N. W. with a good supply of water and fuel.

Banca, a small island of a cluster still smaller, lying off the north-east extremity of the island of Celebes, which are much frequented by the Malay pirates. Fish, turtle, and fruits, are plentiful. Long. 125° E., lat. 1° 50′ N.

BANCAL, an East Indian weight, containing 16$\frac{1}{16}$ drams Avoirdupois.

BANCALIA, old law, Lat. cushions for benches.

BANCALIS, a sea-port town on the east coast of Sumatra, where the Dutch have a settlement. It lies 130 miles west of Malacca.

BANCHI (Seraphin), archbishop of Angoulême. He was at first a priest of the Dominican order at Florence; but in 1593 one Peter Barriere, a hot-headed fanatic, having communicated to him his purpose of murdering the king, Banchi prudently revealed the matter to a nobleman, by which the horrid design was prevented from being executed. He was rewarded with the archbishopric of Angoulême. He afterwards resigned his charge, and retired to St. James's monastery at Paris, where he continued till his death.

BANCHO, or Banquo, thane of Lochaber, the grandfather of Walter, the first lord high steward of Scotland, and the progenitor of the royal house of Stewart. He gained several great victories over the Highlanders and Danes, in the reign of Donald VII. but his glory was tarnished by joining Macbeth in the conspiracy against that monarch; and he was murdered by the tyrant Macbeth about A. D. 1046.

BANCI Jus, the privilege of having a bench was anciently allowed to the king's judges qui summam administrant justitiam. Inferior courts, as courts baron, hundred courts, &c. were not allowed that prerogative; and even at this day the hundred court at Freebridge, in Norfolk, is held under an oak at Gey-wood; and that of Woolfry, in Herefordshire, under an oak near Ashton, in that county, called Hundred oak.

BANCK (Peter Vander), an engraver of considerable repute, born at Paris, and bred under the celebrated Francis de Poilly. He came over into England with Gascar, the painter, about 1674; and married the sister of —— Forester, Esq. He was a laborious artist: but the pay he received for his plates being by no means adequate to the time he bestowed upon them, he was reduced to want; and, retiring from business, sought an asylum in the house of his brother-in-law. He died at Bradfield, and was buried in the church in 1674; leaving his widow in possession of the chief part of his plates, which she disposed of to Brown, a print-seller, to great advantage, and left an easy fortune. His chief employment was engraving portraits; and according to Virtue's account of him, published by Walpole, he was the first in England who engraved them on so large a scale. Like many of Poilly's disciples, his great merit consists in the neat management of the mechanical part of the art.

BANCO, an Italian word, which signifies bank, and commonly used to signify the bank of Venice.

BANCOOK, a town in the kingdom of Siam, in Asia, with a fort, which was once in the possession of the French, but they were driven from it in 1688. The houses are made of canes, covered with palm leaves, and the inhabitants go almost naked. It is forty miles south of the city of Siam.

BANCROFT (Richard), archbishop of Canterbury, was born at Farnworth, in Lancashire, in 1544, and studied at Cambridge, where he took his degrees of B. A. M. A. and D. D. After passing successively through several gradations in the church, he was, in 1597, appointed bishop of London. In 1600 he was sent by queen Elizabeth to settle some difference between the English and the Danes. He also interposed in the disputes between the secular priests and the Jesuits, and furnished arguments to the former. In 1603 he was at the conference at Hampton Court, between the bishops and the Presbyterian ministers, and was appointed a commissioner for regulating church affairs. In 1604 he was appointed president of the convocation, and soon after elected archbishop of Canterbury, which was confirmed by king James I. His last promotion was in 1610, to be chancellor of the university of Oxford, which he did not long enjoy, for he died in 1612, of the stone, at Lambeth.

Bancroft (John), bishop of Oxford, a nephew of the above, born in Oxfordshire. In 1592 he was admitted of Christ Church, in Oxford. In 1609 he was chosen master of University College, where he continued above twenty years; during which time he was at a great deal of labor as well as expense to recover the ancient lands belonging to that foundation. He was made bishop

of Oxford in 1622, and he built the palace of Cuddesden for that see. He died in 1640, and was interred in the church of Cuddesden.

BAND', *v.* & *n.* } Dut. *bende*, Sax. *band*, Goth. *bandi*, Celt. *ban*. A tie. The noun upon which the verb to band is formed, is the past participle of the verb to bind. To tie, fasten, unite, join, yoke together; mutual engagement; promise; to be in bonds or bondage; to confederate for one common purpose. Band, in our old writers, is frequently written *bende*.

BAND'AGE, BAND'OR, BAND'ER.

With a *bend* of gold tassiled,
And knoppes fine of gold amiled. *Chaucer.*
The botiler is not my friend,
Whiche hathe the key by the *bende*.
Gower.

Then wrong it were, that any other twaine
Should in love's gentle *band* combyned bee,
But those whom heaven did at first ordaine,
And made out of one mould the more t' agree.
Spenser.

And when it was day, certain of the Jews *banded* together, and bound themselves under a curse, that they would neither eat nor drink till they had killed Paul. *Bible. Acts* ch. xxiii. ver. 12.

Yorke and his *banders* proudly pressed in,
Mirror for Magistrates.

Men's hearts are growne so false, that most are loath
To trust each other's words, or *bands*, or oath;
For though we had in every part an eye,
We could not search out all hypocrisy.
George Wither.

Like Maia's son he stood,
And shook his plumes, that heav'nly fragrance fill'd
The circuit wide, strait knew him all the *bands*
Of angels under watch; and to his state,
And to his message, high in honour rise. *Milton.*

What multitudes
Were *banded* to oppose his high decree. *Id.*

Now strike the golden lyre again,
A louder yet, and yet a louder strain,
Break his *bands* of sleep asunder,
And rouse him like a rattling peal of thunder.
Dryden.

The queen, in white array, before her *band*,
Saluting took her rival by the hand. *Id.*

On a sudden, methought, this select *band* sprang forward, with a resolution to climb the ascent, and follow the call of that heavenly musick. *Tatler.*

Strait the three *bands* prepare in arms to join,
Each *band* the number of the sacred Nine. *Pope.*

He took his lodging at the mansion-house of a taylor's widow, who washes, and can clear-starch his *bands*. *Addison.*

Zeal, too, had a place among the rest, with a *bandage* over her eyes; though one would not have expected to have seen her represented in snow. *Id.*

Cords were fastened by hooks to my *bandages*, which the workmen had girt round my neck. *Swift.*

Pride in their port, defiance in their eye,
I see the lords of human kind pass by;
Intent on high designs, a thoughtful *band*,
By forms unfashioned, fresh from nature's hand.
Fierce in their native hardiness of soul,
True to imagin'd right, above control;
While e'en the peasant boasts these rights to scan,
And learns to venerate himself as man.
Goldsmith's Traveller.

While her snowy hands
From her fair brow, her golden hair unbind,
And of her zone unloose the silken *bands*,
More passing bright unveil'd her beauty stands.
Mrs. Tighe.

Pirate, thou know'st me not—but I am one
Grateful for deeds thou hast too rarely done;
Look on me—and remember her thy hand
Snatch'd from the flames, and thy more fearful *band*.
Byron.

BAND', in architecture, a low flat moulding, otherwise called a *face*, from *fascia*.

BAND is also the denomination of a military order in Spain, instituted by Alphonsus XI. king of Castile, for the younger sons of the nobility, who, before their admission, must serve ten years at least, either in the army or at court; and are bound to take up arms for the catholic faith against the infidels.

BAND OF PENSIONERS, a company of 120 gentlemen, who receive a yearly allowance of £100 for attending on his majesty on solemn occasions.

BANDS OF A SADDLE are two pieces of iron nailed upon the bows of the saddle, to hold the bows in the right situation.

BANDA ISLANDS, a group of islands in the Eastern ocean, about 130 miles E. S. E. from Amboyna. They strictly include ten separate isles, Banda Neira, Banda Lantoir, Pulo Ay, Pulo Rondo, Pulo Pisang, Rosingen, Craka, Capella, Souangy, and Gonong Apee, the last being a volcanic islet, rising 2000 feet above the level of the sea. They are all small; Banda Proper, or Lantoir, one of the largest, is only about eight miles long, and not more than three broad; Neira, another of the most considerable, does not contain much more than two or three square miles. Their rich black soil makes them generally fertile in tropical fruits; but their chief and well known produce is nutmegs, for the cultivation of which Neira, Lantoir, Pulo Ay, and Pulo Rondo, are laid out in parks or plantations. The plant attains the size of a pear-tree, with a leaf resembling that of the laurel, and the fruit, enveloped in a membranaceous covering of mace, is contained in a husk. It is of the shape of a pear when ripe, and approaches the size of an apricot: it is then pulled and put into a drying-house or kiln, where it is exposed during three months to a slow fire: the husk or shell is now broke, and the nutmeg instantly placed among lime, to prevent the attack of insects. It is afterwards made up into packages of 200 pounds each, for exportation. Each tree produces about ten pounds yearly, and an oil is extracted from the unripe and damaged fruit. Nutmeg-trees require incessant care; a great proportion of them are barren, a defect which cannot be discovered before the twelfth or fourteenth year. From this period they continue bearing until the age of twenty, four years after which they perish. The total quantity produced in the four islands the Dutch would never suffer to be ascertained. When they were captured in 1796, a half year's crop was found to amount to 81,618 pounds of nutmeg, and 23,885 pounds of mace. Formerly the average sales were estimated at 350,000 pounds of nutmeg annually, and 100,000 pounds

of mace. For many of the necessaries of life these islands depend upon Java. The Dutch having subjected the original inhabitants, were the first European occupiers of the Banda islands. And their most extraordinary policy was to cultivate a portion, and carefully extirpate the trees in all the other islands. This was obviously a check upon the population. By a census taken in 1796, they were found to be 5763; in 1814 they were estimated at little more than 4000; about three-fourths of whom were slaves. The accounts therefore which formerly stated them at 15,000 whites, were most likely exaggerated.

The seat of government is Neira, where there is a good harbour, and two fortresses, public magazines and storehouses, for the produce of the nutmeg plantations. Garrisons have always been maintained in these fortresses; but they were taken possession of by Admiral Rainier in 1796, with little opposition. Being restored to the Dutch by the peace of Amiens, they were again taken by the English in 1810; and reverted to their former masters at the general peace of 1814. The latitude of these islands is between 4° and 5° S. and the longitude about 130° E.

BANDALEER, or BANDELEER, in military affairs, a large leathern belt, thrown over the right shoulder, and hanging under the left arm; worn by the ancient musqueteers, both for the sustaining of their fire-arms, and for the carriage of their musket-charges, which being put up in little wooden cases, coated with leather, were hung, to the number of twelve, to each bandaleer.

BANDALUSAN, a small island in the Eastern Indian sea, near the south coast of Mindanao. Long. 122° 58′ E. lat. 7° 12′ N.

BANDARRA (Gonzales), a Portuguese fanatic of the sixteenth century, who, pretending to be a prophet, raised some disturbance, and in 1541, made a narrow escape from being burnt for heresy, by the inquisition. He died in 1556.

BAND'BOX, *n. s.* From band and box. A slight box used for bands, and other things of small weight.

My friends are surprised to find two *bandboxes* among my books, till I let them see that they are lined with deep erudition. *Addison.*

With empty *bandbox* she delights to range,
And feigns a distant errand from the 'Change.
Gay's Trivia.

BAND'ELET, *n. s.* Fr. *bandelet*. In architecture, any little band, flat moulding, or fillet.

BANDELLO (Matthew), bishop of Agen, was born at Castelnovo, in the Milanese, about the end of the fifteenth century. He was first a Dominican monk, and distinguished himself by writing novels in the manner of Boccacis. When his country was invaded by the Spaniards he went to France, and there, in 1550, obtained the bishopric of Agen, but resigned it in 1555. He died in 1561. The best edition of his novels is that printed at London, in four volumes, 4to. 1740.

BANDEL, a sea-port of Japan, on the north-west coast of the island of Niphon. Long. 131° 45′ E., lat. 34° 46′ N.

BANDEL D' AGOA, a sea-port on the east coast of Africa, supposed by Dr. Vincent to be the Zergifa of Ptolemy. Long. 49° E., lat. 8 20′ N.

BANDEL CAUS, a sea-port on the east coast of Africa, supposed by Vincent to be the Opone of Ptolemy. Lat. 8° 15′ N.

BANDEL VELHO, or OLD PORT, on the coast of Ajan, supposed by Vincent to be situated on what the Periplus calls the Little Coast. Gosselin imagines it to be the Rhapta of Ptolemy and the Periplus. Fifty miles N. N. E. of Magdasho.

BANDEN, a hill of Scotland, in Fifeshire, which commands an extensive view of the Strath of Eden, from Kinross to St. Andrew's Bay. The remains of an ancient rampart and circumvallation, 200 yards in diameter, and of a circular form, are to be seen upon it.

BANDER-ABASSI. See GOMBRON.

BANDERAS, a large bay in the Pacific Ocean, on the west coast of Mexico, between Cape Corientes and Tintoque Point. Lat. 20° 30′ N.

BANDER-CONGO, a small sea-port town in Asia, seated on the east side of the Persian Gulf; eighty miles west of Gombron; and 190 of Bander-Abassi.

BANDERET, a general, or one of the commanders in chief of the forces. This appellation is given to the principal commanders of the troops of the canton of Berne, in Switzerland, where there are four banderets, who command all the forces of that canton.

BANDEROLL, a little flag, in form of a guidon, extended more in length than in breadth, used to be hung out on the masts of vessels, &c.

BAND FISH, in zoology, the English name of the cepola rubescens.

BANDI. See ANGOLA.

BANDINELLI (Baccio), a celebrated sculptor and painter of Florence, born in 1487. Though he distinguished himself by his skill in both lines, he chiefly excelled in sculpture; and his group of the Lacoon is much admired. He died in 1559.

BAND'IT, *n.* } Ital. *ban* and *ditto*. It
BAND'ITTO, *n.* } is the past participle of
BAND'ITTI *(plural).* } *dicere*, united to *ban*, excommunicated or banished; and thus signifies one declared to be banished. An exile or outlaw. Banditti are not only outlaws, but robbers, who commit their depredations in concert. Men who place themselves without the pale of society, that they may commit aggressions upon its peace and property.

A Roman sworder, and *banditto* slave,
Murder'd sweet Tully. *Shakspeare.*

No savage fierce, *bandit*, or mountaineer,
Will dare to soil her virgin purity. *Milton.*

Just as much fidelity might be expected from them in a common cause, as there is among a troop of honest, murdering, and ravishing *bandits*. *Dryden.*

No *bandit* fierce, no tyrant mad with pride,
No cavern'd hermit, rests self-satisfy'd. *Pope.*

Who are they who can be said to be govern'd by laws of their own making? I know of no such persons; I never heard or read of any such, except, perhaps, among pirates, and other *banditti*, who, trampling

on all laws, divine and human, refuse to be governed in any other way than by their own licentious regulations. *Beattie.*

BANDITTI. Brydone, in his Tour through Sicily, informs us, that in the eastern part, called Val Demoni, from the devils that are supposed to inhabit Mount Etna, it was in his time found altogether impracticable to extirpate the banditti; there being numberless caverns and subterraneous passages round that mountain, where no troops could possibly pursue them: besides they were known to be perfectly determined and resolute, never failing to take a dreadful revenge on all who offended them. Hence, the prince of Villa Franca embraced it, as the safest, wisest, and most political scheme, to become their declared patron and protector. Such of them as thought proper to leave their mountains and forests, though perhaps only for a time, met with encouragement, and a certain protection in his service, where they enjoyed his confidence, which in no instance were they found to abuse. They were clothed in the prince's livery, and wore a badge of their order, which entitled them to universal fear and respect from the people. The persons of those whom they accompanied were ever held sacred. For this reason travellers chose to hire a couple of them from town to town; and many thus travelled over the whole island with them in safety.

BANDITTI ISLAND, an island on the eastern Indian sea, at the south entrance of the straits of Lombhook, about twenty miles in circuit. Long. 115° 35′ E., lat. 8° 50′ N.

BAN DOG. In zoology, a name of the canis molossus, or mastiff. But Dr. Johnson observes, that the original of this word is very doubtful. Caius, De Canibus Britannicis, derives it from *band*, that is, a dog chained up. Skinner inclines to deduce it from *bana*, a murderer. May it not come from *ban*, a curse, as we say a curst cur; or rather from *baund*, swelled or large, a Danish word; from whence, in some counties, they call a great nut a *ban*-nut. A kind of large dog.

Or privy, or pert, if any bin,
We have great *bandogs* will tear their skin.
Spenser.

The time of night when Troy was set on fire,
The time when screech-owls cry, and *bandogs* howl.
Shakspeare. Henry VI.

Then, Somerset says, set the *bandog* on the bull.
Drayton.

BANDON, or BANDON-BRIDGE, a considerable borough town of Cork, in Ireland, situated on a river of the same name. It is called by the Irish, Drohed (the bridge), and was founded by the first earl of Cork in 1610. The walls were demolished by the Irish, in 1689, and, in consequence of this violence, papists were long prohibited from residing in the town. Bandon principally belongs to the duke of Devonshire and the earl of Bandon. It returns one member to the imperial parliament. The cotton manufactory used to flourish here, and great numbers of workmen are still employed on linens, camlets, and woollens. The population is 10,179; distance from Cork thirteen miles; from Dublin, 113.

BANDORA, a town of the island of Salsette, on the west coast of the peninsula on this side the Ganges.

BANDORE, a musical instrument with strings, resembling a lute, said to have been invented in the fourth year of queen Elizabeth, by John Rose, a citizen of London.

BANDROL, banderol, Fr. A little flag, or streamer; the little fringed silk flag that hangs on a trumpet.

BANDUM, or BAND, is used, in middle age writers, for a flag or banner.

BANDURI (Anselm), a learned Benedictine, born at Ragusa, in Dalmatia. He studied in France, and applied himself principally to antiquities. He published, The Antiquities of Constantinople, two volumes, folio; and Numismata Imperatorum Romanorum, a Trajano Decio ad Paleologos Augustos, 1718. He died at Paris in 1743.

BAN'DY, *v.*, *n.s.*, & *adj.* Fr. *bander*, to make crooked. A club turned round at bottom for striking a ball at play; hence to bandy is to beat to and fro from one to another, to agitate, to toss about, to give and take reciprocally, to contend as at some game, in which each strives to drive the ball his own way.

The shooting stars,
Which, in an eye-bright evening, seem'd to fall,
Are nothing but the balls they lose at *bandy*.
Brewer's Lingua, ii. 6.

They do cunningly, from one hand to another, *bandy* the service like a tennis-ball. *Spenser.*

Do you *bandy* looks with me, you rascal?
Shakspeare.

No simple man that sees
This factious *bandying* of their favourites,
But that he doth presage some ill event. *Id.*

Had she affections and warm youthful blood,
She would be as swift in motion as a ball,
My words would *bandy* her to my sweet love,
And his to me. *Id.*

Could set up grandee against grandee,
To squander time away and *bandy*;
Made lords and commoners lay sieges,
To one another's privileges. *Hudibras.*

They now begun
To spur their living engines on;
For as whipp'd tops, and *bandy'd* balls,
The learn'd hold, are animals;
So horses they affirm to be,
Mere engines made by geometry. *Id*

And like a ball, *bandy'd* 'twixt pride and wit,
Rather than yield, both sides the prize will quit.
Denham.

This hath been so *bandied* amongst us, that one can hardly miss books of this kind. *Locke.*

Ever since men have been united into governments, the endeavours after universal monarchy have been *bandied* among them. *Swift.*

He that is employed, has no leisure to move in the little disputes and quarrels which trouble the peace of the mind, and which are chiefly kept up and *bandied* to and fro by those who have nothing else to do. *Atterbury.*

What vigorous arm, what repercussive blow,
Bandies the mighty globe still to and fro.
Blackmore.

She calls it witty to be rude,
And placing raillery in railing,
Will tell aloud your greatest failing;
Nor make a scruple to expose
Your *bandy*-leg, or crooked nose. *Swift.*

The Ethiopians had a one-eyed *bandy-legged* prince; such a person would have made but an odd figure. *Collier.*

BANDY LEGS, are legs distorted, turning either inward or outward on either side; arising from some defect in the birth, or imprudence in the nurse, endeavouring to make a child stand or walk before his legs were strong enough to sustain the weight of his body. See VALGUS.

BANE', *v.* & *n.* } Sax. *bana*, a murderer, according to Dr. Johnson; but it may be referred to the Goth. *banjos*, ulcers, sores, wounds, or to *bane*, destruction, death. To poison, to render poisonous, to destroy; to cause destruction or ruin.

BANE'FUL, }
BANE'FULNESS. }

For in his hunting hathe he swiche delite,
That it is alle his joye and appetite,
To ben himself the grate hart's *bane*. *Chaucer.*

Help me, ye *banefull* byrds! whose shrieking sound
Is signe of dreary death, my deadly cries
Most ruthfully to tune. *Spenser.*

Another righteous doom I saw of greedy gain,
With busy cares such treasures oft preserved,
Are to their *bane*. *Earl of Surrey.*

The country people use kitchen physick, and common experience tells us, that they live freest from all manner of infirmities that make least use of apothecaries' physick. Many are overthrown by preposterous use of it, and thereby get their *bane*, that might otherwise have escaped.
Burton's Anatomy of Melancholy.

Lest Rome herself be *bane* unto herself,
And she whom mighty kingdoms court'sy to,
Like a forlorn and desperate cast away,
Do shameful execution on herself. *Shakspeare.*

Begone, or else let me. 'Tis *bane* to draw the same air with thee. *Ben Jonson.*

All good to me becomes
Bane; but in heav'n much worse would be my state. *Milton.*

They with speed
Their course through thickest constellations held,
Spreading their *bane*. *Id.*

Insolency must be repressed, or it will be the *bane* of the Christian religion. *Hooker.*

Who can omit the Gracchi, who declare
The Scipios' worth, those thunderbolts of war,
The double *bane* of Carthage? *Dryden.*

False religion is, in its nature, the greatest *bane* and destruction to government in the world. *South.*

For voyaging to learn the direful art,
To taint with deadly drugs the barbed dart;
Observant of the gods, and sternly just,
Ilus refus'd t' impart the *baneful* trust. *Pope.*

Thus am I doubly arm'd; my death and life,
My *bane* and antidote, are both before me,
This in a moment brings me to my end;
But that informs me I shall never die. *Addison.*

Thy sins are of so *baneful* a nature, that they poison even the blood of Christ unto thee.
Hopkins's Sermons.

Then would'st thou steer, where fortune spreads the sails?
Go flatter vice, for seldom flattery fails.
Soft through the ear the pleasing *bane* distils;
Delicious poison! in perfumes it kills! *Broome.*

O *bane* of good, seducing cheat,
Can man, weak man, thy power defeat? *Gay.*

Beneath the gloomy covert of a yew,
That taints the grass with sickly sweats of dew;
No verdant beauty entertains the sight,
But *baneful* hemlock, and cold aconite. *Garth.*

When it is now clear beyond all dispute, that the criminal is no longer fit to live upon the earth, but is to be exterminated as a monster, and a *bane* to human society, the law sets a note of infamy upon him, and puts him out of its protection. *Blackstone.*

So gentle life's descent,
We shut our eyes, and think it is a plain;
We take fair days in winter for the spring;
And turn our blessings into *bane*. *Young.*

But quiet to quick bosoms is a hell,
And there hath been thy *bane*. *Byron.*

BANE BERRIES, a name given to the actæa spicata, or herb christopher.

BANEWORT, *n. s.* From bane and wort. A plant, the same with deadly nightshade.

BANG', *v.* & *n.* Dut. *bengeler*, to beat with sticks, clubs, &c. Swed. *bana*, to strike. A northern provincialism, to beat. To beat, or strike, to hit hard; to give repeated heavy blows. Figuratively applied to speech; thus to *tongue-bang*, is to scold, and overpower others by virulent noisy abuse.

The desperate tempest hath so *bang'd* the Turks,
That their designment halts. *Shakspeare.*

You should accost her with jests fire-new from the mint; you should have *banged* the youth into dumbness. *Id.*

I am a bachelor.—That's to say, they are fools that marry; you'll bear me a *bang* for that. *Id.*

With many a stiff twack, many a *bang*,
Hard crab-tree and old iron rang. *Hudibras.*

I heard several *bangs* or buffets, as I thought, given to the eagle that held the ring of my box in his beak. *Swift's Gulliver.*

He having got some iron out of the earth, put it into his servant's hands to fence with, and *bang* one another. *Locke.*

Formerly I was to be *banged* because I was too strong, and now, because I am too weak, to resist; I am to be brought down when too rich, and oppressed when too poor. *Arbuthnot.*

But, dear Mr. Bickerstaff, convince 'em that as harsh and irregular sound is not harmony; so neither is *banging* a cushion, oratory. *Tatler.*

BANGALOOR, or BANGALORE, a fortress in the peninsula of Hindostan, seventy-four miles from Seringapatam, the capital of the Mysore. Hyder Ali constructed the fort there, which Tippoo Saib destroyed, as useless against Europeans. Here, however, he built a palace, and laid out extensive gardens. It is a good place for trade, especially in the betel-nut, black-pepper, and sandal wood. Woollen cloths, &c., and a kind of strong silken stuff, are manufactured here. Bangaloor was annexed to the Mysore in 1787, was taken by assault, under lord Cornwallis, and plundered by the army.

BANGASSI, a large fortified town of Fooladoo, in Africa. Long. 6° 45′ W., lat. 13° 10′ N.

BANGERMOW, a considerable town of Hindostan, in the province of Oude. Long. 80° 25′ E., lat. 26° 48′ N.

BANGEY, a cluster of small islands in the Molucca passage. Long. 124° 15′ E., lat. 1° 45′.

BANGIUS (Peter), a Swedish divine, born at Helsingborg in 1633. He became professor of theology at Abo, where he continued thirty-two years; and in 1682, obtained the bishopric of

Wyborg. He died in 1696, leaving, besides other works, an Ecclesiastical History of Sweden; and a Treatise on Sacred Chronology.

Bangius (Thomas), a Danish divine, born in 1660, he was professor of divinity, philosophy, and Hebrew, at Copenhagen; and distinguished himself as an elegant Latin writer, on the origin of languages, and other subjects. He also published a Hebrew lexicon. He died in 1661.

BAN'GLE, *v. a.* To waste by little and little; to squander carelessly; a word now used only in conversation.

Betwixt hope and fear—betwixt falling in, falling out, &c. we *bangle* away our best days, befool out our times. *Burton's Anatomy of Melancholy.*

If we *bangle* away the legacy of peace left us by Christ, it is a sign of our want of regard for him. *Duty of Man.*

Bangle Ears, an imperfection in a horse, remedied in the following manner:—Place his ears in such a manner as you would have them stand; bind them with two little boards so fast that they cannot stir, and then clip away all the empty wrinkled skin close by the head.

BANGLOR, a town in the Mysore territory, twenty miles south-east from Bangaloor.

BANGOR, an episcopal city of Caernarvonshire in North Wales. In ancient times it was so considerable, that it was called Bangor the Great, and defended by a strong castle; but it is now a small place; the principal buildings being the cathedral, the bishop's palace, and a free school. The see is of great antiquity. The church is dedicated to St. Daniel, who was bishop about A.D. 516; but for near 580 years afterwards, there is no certainty of the name of his successors. Owen Glendower greatly defaced the cathedral church; but bishop Dean repaired it again. This see met with a still more avaricious ravager than Owen Glendower, in the person of Bishop Bulkeley; who not only alienated many of the lands belonging to it; but even sold, it is said, the bells of the church. This diocese contains the whole of Caernarvonshire, except five parishes, the whole of Anglesey, and part of the shires of Denbigh, Merioneth, and Montgomery; in which are 107 parishes, whereof thirty-six are impropriated. It has three archdeaconries, viz. Bangor, Anglesey, and Merioneth; of which the two first are commonly annexed to the bishopric for its better support. The prelate is a suffragan to the metropolitan see of Canterbury. The present cathedral was built during various parts of the sixteenth century, and comprises a choir, nave, transepts, two aisles, and a quadrangular tower at the west end. The extreme length from east to west is 214 feet.

The town of Bangor is in a narrow valley between ridges of rock. It has a fine opening to the Menai, and consists of one well-built street. A chain-bridge has lately been opened over the Menai strait, which connects the main land with Anglesey. The population in 1821 was 3579. The new harbour was made by the late Dr. Warren, bishop of Bangor; the entrance of the strait is difficult for ships of burden, except at high water. Bangor has a market on Wednesday, and three fairs, 5th April, 25th June, and 25th October. Lat. 53° 20′., long. 4° 10′ W. 236 miles north-west from London, by Oswestry, and 244 by Aberconway.

Bangor, a town of Ireland, in the county of Down, on the south shore of Carrickfergus Bay. Before the Union, it sent members to parliament.

Bangor, Iscoed, a parish in the hundred of Maylor, Flint, eleven miles west from Whitchurch, Salop, where formerly stood one of the most ancient and extensive monasteries in England, in which 1200 monks were destroyed by Ethelfrid. No traces of the structure remain; but here is an elegant ancient bridge of five arches. The meadows in the neighbourhood are so rich in pasture, that they have been let for eight or nine pounds per acre, per annum.

Bangor, a township of the United States, in Hancock county, district of Maine, on the west side of the Penobscot, 280 miles north-east of Boston.

BANGORI, a town of the peninsula of Malacca.

BANGORIAN Controversy, so called from Dr. Hoadly, bishop of Bangor. It arose from a sermon preached by him before his majesty king George I. at the royal chapel, St. James's, on Sunday, March 31, 1717. Mr. Belsham, in his Memoirs, vol. i. p. 174, gives the following account of this controversy. 'As the foundation of this famous discourse, the bishop chose the declaration of Christ to Pilate: My kingdom is not of this world: and the direct and undisguised object of it was to prove that the kingdom of Christ, and the sanctions by which it is supported, were of a nature wholly intellectual and spiritual; that the church, taking the term in its most unlimited signification, did not, and could not, possess the slightest degree of authority under any commission, or pretended commission, derived from man; that the church of England, and all other national churches, were merely civil or human institutions, established for the purpose of diffusing and perpetuating the knowledge and belief of Christianity, which contained a system of truths, not in their nature differing from other truths, except by their superior weight and importance, and which were to be inculcated in a manner analogous to other truths; demanding only from their more interesting import, proportionably higher degrees of care, attention, and assiduity in the promulgation of them. It is scarcely to be imagined, in these times, with what degree of false and malignant rancor, these plain, simple, and rational principles were attacked by the zealots and champions of the church. See Hoadly. On the meeting of the convocation, a committee was appointed to examine this famous publication, and a representation was quickly drawn up, in which a most heavy charge was passed upon it, as tending to subvert all government and discipline in the church of Christ; to reduce this kingdom to a state of anarchy and confusion; to impugn and impeach the royal supremacy in matters ecclesiastical, and the authority of the legislature to enforce obedience in matters of religion, by severe sanction. A sudden stop, however, was put to these disgraceful proceedings, by royal prorogation; and from that period the convoca-

tion has never been convened, but as a matter of mere form, and for the purpose of being again prorogued. The controversy which then commenced was carried on for several years, with great ability and animation on the part of the bishop, aided by various excellent pens, though opposed by men whose learning and talents gave an artificial lustre to bigotry and absurdity. No controversy, however, upon the whole, ever more fully and completely answered the purpose intended by it. The obscurity in which this subject had been long involved, was dissipated; the public mind was enlightened and convinced; church authority, the chimera vomiting flames, was destroyed; and the name of Hoadly will be transmitted from generation to generation, with increase of honor, of esteem, and grateful veneration.'

BANGUE, a species of opiate, much used throughout the east, for drowning cares and inspiring joy. By the Persians it is called beng; by the Arabs, esscar, corruptly asseral, and assarth; by the Turks, bengitie, and vulgarly mastack; by European naturalists, bangue or bange. It is the leaf of a kind of wild hemp, growing in the countries of the Levant, and differs little, either as to the leaf or seed, from our hemp, except in size. Some have mistaken it for a species of Althæa. There are various manners of preparing it; Olearius describes the method used in Persia. Mr. Sale tells us, that, among the Arabs, the leaf is made into pills or conserves. But the most distinct account is given by Alexander Maurocordato, counsellor and physician of the Ottoman Porte, in a letter to Wedelius. According to this author, bangue is made of the leaves of wild hemp, dried in the shade, then ground to powder; put into a pot wherein butter has been kept; set in an oven till it begins to torrify; then taken out and pulverised again; thus to be used occasionally, as much at a time as will lie on the point of a knife. Such is the Turkish bangue. Bangue in reality, is a succedaneum to wine, and is therefore much used in those countries where Mahommedanism is established.

BANGUEY, an island in the eastern seas, lying off the north coast of Borneo, and separated by a channel, three miles wide, from the island of Balambangan. It is about twenty-three miles in length, by eleven in breadth, and its shores are frequented by abundance of turtle. Long. 117° 25′ E., lat. 7° 15′ N.

BANIAK, an island in the eastern seas, off the west coast of Sumatra, opposite to the mouth of the Sinkell. It is one of a cluster, and is about seventeen miles in length, by seven in average breadth. It is known by a peaked hill, resembling a sugar-loaf. Sea slug, or biche-de-mar is obtained here. The inhabitants are of the Maruwi race, but speak a language peculiar to themselves. Long. 96° 48′ E., lat. 2° 10′ N.

BANIALUCH, or Banjaluka, a city of European Turkey, the capital of Bosnia, upon the frontier of Croatia, on the river Verbas. The houses, which amount to 3000, are meanly built, and the suburbs are chiefly inhabited by Greeks. Long. 18° 20′ E., lat. 44° 20′ N.

BANIAN Days, in marine language, a term among sailors, for those days in which they have no flesh meat. It seems to be derived from the practice of the people mentioned in the next article.

Banians is sometimes taken as a name for a religious sect in the empire of the Mogul, and sometimes extended to all the idolaters of India, as contradistinguished from the Mahommedans: in which sense, Banians include the Brahmins and other castes. At other times it is restrained to a peculiar caste or tribe of Indians, whose office or profession is trade and merchandise; in which sense Banians, signifying bankers, stand contradistinguished from Brahmins, Cuttery, and Wyse, the three other castes into which the Indians are divided. The four castes are absolutely separate as to occupation, relation, marriage, &c. though all of the same religion; which is more properly denominated the religion of the Brahmins, who make the ecclesiastical tribe, than of the Banians, who make the mercantile. The proper Banians are called, in the Shaster, or book of their law, by the name of Shuddery; under which are comprehended all who live after the manner of merchants, or that deal and transact for others, as brokers; exclusive of the mechanics or artificers, who make another caste. These Banians have no peculiar sect or religion, unless it be, that two of the eight general precepts given by their legislator, Bremaw, to the Indian nation, are, on account of the profession of the Banians, supposed more immediately to relate to them, viz. those which enjoin veracity in their words and dealings, and avoiding all practices of circumvention in buying and selling. Some of the Banians, quitting their profession, and retiring from the world, commence religious, assume a peculiar habit, and devote themselves more immediately to God, under the denomination of Vertea. These, though they do not hereby change their caste, are commonly reckoned as Brahmins of a more devout kind; as monks in the Romish church, though frequently not in orders, are reputed as a more sacred order than the regular clergy. Gemelli Carreri divides the Banians into twenty-two tribes, all distinct, and not allowed to marry with each other. Lord assures us they are divided into eighty-two castes or tribes, correspondent to the castes or divisions of the Brahmins or priests, under whose discipline they are, as to religious matters, though the generality of the Banians choose to be under the direction of the two Brahmin tribes, the Visalnagranaugers and Vulnagranaugers. The Banians are represented as great factors, by whom most of the trade of India is managed; in this respect equal to the Jews and Armenians, and not behind either, in point of skill and experience, in whatever relates to commerce. Nothing is bought but by their mediation. They seem to claim a kind of jus divinum to the administration of the traffic of the nation, grounded on their sacred books, as the Brahmins do to that of religion. They are dispersed, for this purpose, through all parts of Asia, and abound in Persia, particularly at Ispahan and Gombroon, where many of them are extremely rich, yet never above acting as brokers. But it has been justly said by a late writer, that the name Banian was

originally given by Europeans to almost all Hindoos; and that generally what we read of their peculiar tenets, their abhorrence for meat, &c. is, in fact, the practise of all conscientious Hindoos.

BANIAN TREE. See FICUS.

BANICA, a town in the island of Hispaniola, forty miles south-east of Cape François. Also the name of a small river in the same island.

BANJAR MASSIN, or BAGNAR MESSIN, a town and district of Borneo, on a river of the same name, which falls into the sea near the southern extremity of the island. The district produces diamonds, gold dust, iron, canes, and pepper, the last of which is its staple commodity. Gold is obtained here in bars, and the country is celebrated for the quality of its steel. The imports are slaves, birds' nests, nutmegs, and tortoise shells, which are all re-exported from Borneo. The rajah, or sovereign, formerly resided at a place called Cagu-Tangie, or Cota-Tengah, but he directed a city to be built at Martapura, whither he transferred his abode in 1771, changing the name of Martapura to Bunire Kintjana. His power is considerable. A Dutch commercial establishment on the banks of the river, at the end of the village of Banjar Massin, called Tatas, consists of an octagonal fort, surrounded by palisades, with bastions towards the river side; it was built in 1709. They had, by a previous treaty in 1648, compelled the king to relinquish for their benefit the whole pepper trade. The king has, in return, been protected by the Dutch from the unsettled predatory tribes in his neighbourhood. In the beginning of the seventeenth century, an establishment was attempted here by the English East India Company, but the settlers were resolved to abandon the place. During the late war, however, the Dutch fort was occupied by the British. The town of Banjar Massin formerly stood eighteen miles up the river, but has been transferred six miles lower down. It consists of about 300 houses. Long. 114° 55′ E., lat. 3° S.

BANIASS, or PANAAS, anciently Cæsarea Philippi, a village of Syria, near the source of a river, which has been commonly supposed to be the Jordan. This stream rises near a remarkable grotto in a rock, on the declivity of which are seen some ancient Greek inscriptions to Pan and the nymphs of the fountain. The vestiges of a flourishing city are still to be seen; but there are no remains of the temple which Herod the Great erected in honor of Augustus. The fort of Baniass, built in the time of the caliphs, stands on the summit of a lofty mountain. Around is an agreeable country, but panthers, bears, wolves, and hyænas, are numerous. There is also great abundance of game. Distant two leagues west of the lake Phiala, or Birkel-el-Ram.

BANIER (Anthony), licentiate in laws, member of the academy of inscriptions and belles lettres, and ecclesiastic of the diocese of Clermont, in Auvergne; died in November 1741, aged 69. He is principally celebrated for his translation of the Metamorphoses of Ovid, with remarks and explanations, which was published in 1732, at Amsterdam, in folio, ornamented with copper-plates, by Picart; and reprinted at Paris, 1738, in 2 vols. 4to; and for his Mythology explained by History, a work full of the most important information, and printed at London in 1741, in 4 vols. 8vo.

BANILLIA, in the materia medica, a name used by some for the vanillia, or vanilloes, used in making the scented chocolate.

BANISERLIE, the capital of Dentila, in western Africa. It is a Mahommedan town.

BAN'ISH, BANISH'ER, BANISH'MENT, BAN'NITION. See BAN. Sax. *forbæned*, a banished nan. In Fr. *bannir*, Germ. *bannen*, to put out of a community by a ban or civil interdict, which was formerly either ecclesiastical or civil. *Banishment*, *exile*, and *expulsion*, all include the idea of exclusion or coercive removal, but in other respects they differ. *Banishment* follows from a decree of justice; *exile*, either by the necessity of circumstances or an order of authority; *banishment* is a disgraceful punishment inflicted by tribunals upon delinquents; *exile* is a disgrace incurred without dishonor; *exile* removes us from our country; *banishment* drives us from it ignominiously. *Banishment* and *expulsion*, both mark a disgraceful and coercive exclusion. But *banishment* is authoritative, the public act of government; *expulsion* is the act of a private individual, or a small community. *Banishment* always supposes a removal to a distant spot, to another land; *expulsion* never reaches beyond a particular house or society. *Banishment* and *expulsion* are likewise used in a figurative sense, although *exile* is not: in this sense *banishment* marks a distant and entire removal; *expulsion* a violent removal; we *banish* that which it is not prudent to retain; we *expel* that which is noxious. Hopes are *banished* from the mind when every prospect of success has disappeared; fears are *banished* when they are altogether groundless; envy, hatred, and every evil passion should be *expelled* from the mind as disturbers of its peace; harmony and good-humor are best promoted by *banishing* from conversation all subjects of difference in religion and politics; good morals require that every unseemly word should be *expelled*.

> This is thy mortal foe, this is Arcite,
> That frō thy lond is *banished* on his hed,
> For which he hath deserved to be ded.
>
> *Chaucer.*

> Plato made it a great signe of an intemperate and corrupt commonwealth, where lawyers and physicians did abound; and the Romans distasted them so much that they were *banished* out of their city, as Pliny and Celsus relate, and for 600 years not admitted.
>
> *Burton's Anatomy of Melancholy.*

> Oh, fare thee well!
> Those evils thou repeat'st upon thyself
> Have *banish'd* me from Scotland. *Shakspeare.*

> Marius then fetching a deep sigh from his heart, gave him this answer, 'Thou shalt tell Sextilius, that thou hast seen Caius Marius, *banished* out of his country, sitting amongst the ruins of the city of Carthage.'
>
> *North. Plutarch.*

> They refused to do it (take the oaths), and were upon that condemned to perpetual *banishment*, as men that denied allegiance to the king, and by this an engine was found out to *banish* as many as they pleased. *Bishop Burnet's Own Times.*

As I have your express orders not to restore any person who has been sentenced to *banishment*, either by myself or others; so I have no directions with respect to those, who having been *banished* by some of my predecessors in this government, have by them also been restored. *Melmoth's Pliny*

Every professor do continue in his office during life, unless in case of such misbehaviour as shall amount to *bannition* by the university statutes. *Blackstone's Commentaries.*

Thus I alone, where all my freedom grew,
In prison pine, with bondage and restraint;
And, with remembrance of the greater grief,
To *banish* the less, I find my chief relief.
Earl of Surrey.

Then came the autumne, all in yellow clad,
As though he joyed in his plentious store,
Laden with fruits that made him laugh, full glad
That he had *banisht* hunger, which to fore
Had by the belly oft him pinched sore;
Upon his head a wreath that was enrol'd
With ears of corne of every sort he bore,
And in his hand a sickle he did holde,
To reap the ripen'd fruit the which the earth had yold.
Spenser's Faerie Queene.

If sweet content is *banish'd* from my soul,
Life grows a burthen and a weight of woe.
Gentleman.

Joy to that happy pair,
Whose hopes united *banish* our despair.
Marvell.

Banish business, *banish* sorrow,
To the gods belongs to-morrow. *Cowley.*

It is for wicked men only to dread God, and to endeavour to *banish* the thoughts of him out of their minds. *Tillotson.*

Successless all her soft caresses prove,
To *banish* from his breast his country's love.
Pope.

BANISTER (John), a physician and surgeon in the reign of queen Elizabeth, was educated at Oxford, where, says Anthony Wood, he studied logic for a time; but afterwards applied himself solely to physic and surgery. In 1573 he took the degree of M. B. and, obtaining a licence from the university to practise, settled at Nottingham, where he lived many years in great repute, and wrote several medical treatises. His works were collected and published in 1633, 4to.

BANISTER, the same with BALUSTER.

BANISTERIA, in botany, a genus of the trigynia order, and decandria class of plants, ranking in the natural method under the twenty-third order, trihilatæ. The calyx is quinquepartite, with nectarious pores on the outside of the base; the petals are roundish and ungulated; the seeds are three, with membranaceous wings. There are seven species, all natives of warm countries, but possessing no remarkable properties. An American and West Indian genus, containing twenty-four species, has been figured and described in Cavanilles, 'Monadelphiæ classis dissertationes decem.'

B A N K.

BANK', *v.* & *n.* Junius derives this word from the Dutch *bancke*, which signifies to beat, to strike, as the waves perpetually strike against the shores of the sea, and the current of the river presses against its sides. Skinner is content, as is Johnson, with the Ang.-Sax. *banc*, *tumulus*. Wachter has *banc*, a hill, mound, heap, and any eminence, or rising place. It is transferred, he adds, to all eminent or rising places for sitting or lying, as banks of oars were not on the same level in ancient ships, but seats raised above one another. It may thus be applied to any thing raised to confine a current of water; to any mound or elevation designed as a barrier to protect or defend from the incursions of warriors; or to facilitate the subjugation of forts and cities; and to the raised table or counter of merchants, traders, or money-changers. To *bank* is to confine or surround with *banks;* to throw up embankments. On the authority of Steevens, the commentator on Shakspeare, it has been suggested, that to *bank* may mean to sail along the *banks.*

They besieged him in Abel of Bethmaachah, and they cast up a *bank* against the city; and it stood in the trench. *Samuel.*

When it was day they knewe not the lande, but they spyed a certayne hauen with a *banke*, into which they were minded (if it were possible) to thrust in the ship. *Bible*, 1551.

Have I not heard these islanders shout out
'Vive le roy,' as I have *bank'd* their towns?
Shakspeare.

Have you not made an universal shout,
That Tyber trembled underneath his *bank?* *Id.*

Richmond, in Devonshire, sent out a boat
Unto the shore, to ask those on the *banks*,
If they were his assistants. *Id.*

How sweet the moon-light sleeps upon this bank!
Here will we sit, and let the sounds of musick
Creep in our ears; soft stillness, and the night,
Become the touches of sweet harmony. *Id.*

That strain again, it had a dying fall;
O, it came o'er my ear like the sweet south
That breathes upon a *bank* of violets;
Stealing and giving odour. *Id.*

Plac'd on their *banks* the lusty Trojans sweep
Neptune's smooth face, and cleave the yielding deep.
Waller.

Mean time the king with gifts a vessel stores,
Supplies the *banks* with twenty chosen oars.
Dryden.

That *banks* of oars were not in the same plane, but raised above one another, is evident from descriptions of ancient ships. *Arbuthnot.*

A brook whose stream so great, so good,
Was lov'd, was honour'd as a flood;
Whose *banks* the Muses dwelt upon. *Cranshaw.*

'Tis happy when our streams of knowledge flow
To fill their *banks*, but not to overthrow. *Denham.*

O early lost! what tears the river shed,
When the sad pomp along his *banks* was led!
Pope.

Amid the cliffs
And burning sands, that *bank* the shrubby vales.
Thomson.

My *banks* they are furnished with bees,
Whose murmur invites one to sleep,
My grottos are shaded with trees,
And my hills are white over with sheep.
I seldom have met with a loss,
Such health do my fountains bestow,
My fountains all bordered with moss,
Where the hare-bells and violets grow.
Shenstone.

An intercourse of commerce and language was gradually established between the opposite *banks* of the Danube, and after Dacia became an independent state, it often proved the firmest barrier of the empire against the invasions of the savages of the north.
Gibbon.

On every *bank*, and under every shade,
A thousand youths, a thousand damsels play'd;
Some wantonly were tripping in a ring,
On the soft border of a gushing spring.
Sir William Jones.

Is it owing to Christianity, or to the want of it, that the *banks* of the Nile, whose constantly renewed fertility is not to be impaired by neglect, or destroyed by the ravages of war, serve only for the scene of a ferocious anarchy, or for the supply of unceasing hostilities?
Paley.

BANK', *v.* & *n.*
BANK'ER,
BANK'RUPT, *v.*, *n. s.*, & *adj.*
BANK'RUPTCY,
BANK'EROUT, *v.* & *n.*

A commercial application of the former word. In this sense, bank is a receptacle for money, and to bank is to deposit money in such receptacle. Bankrupt is of more general application, extending to persons who are dealers in any commodity, or who carry on any trade or business. It is derived from the Fr. *banqueroute*, or the Ital. *bancorotto*. It signifies one whose bench or table has been broken; that is, whose debts exceed his means of payment. The Bankrupt laws accurately define this species of offence or misfortune.

But natheless I toke unto our dame,
Your wif at home, the same gold again
Upon your *benche*, she wote it wel certain,
By certain tokenes that I can hire tell. *Chaucer.*

He hadde openly preached in the temple, he had overthrown the *banker's* tables, and drieven oute of the temple too. *Sir Thomas More's Works.*

Perkin gathered together a power, neither in number nor in hardiness contemptible; but in their fortunes, to be feared, being *bankrupts*, and many of them felons. *Bacon.*

Wherefore do you look
Upon that poor and broken *bank'rupt* there?
Shakspeare. As you Like it.

ROSS. The earl of Wiltshire hath the realm in farm.
WILLOUGHBY. The king's grown *bankrupt*, like a broken man. *Id. Richard II.*

Dainty bits
Make rich the ribs, but *bankerout* the wits. *Id.*

Unless we had rather think both moral and judicial, full of malice and deadly purpose, conspired to let the debtor Israelite, the seed of Abraham, run on upon a *bankrout* score, flattered with insufficient and ensnaring discharges.
Milton. Doctrine, &c. of Divorce.

This done, he pens a proclamation stout,
In rescue of the *banker's bankerout*. *Marvell.*
The money of widows and orphans employ'd,
And the *bankers* quite broke. *Id.*

GONZ. There's the quintessence,
The soul and grand elixir of my wit,
For he (according to his noble nature)
Will not be known to want, though he do want,
And will be *bankrupted* so much the sooner,
And make the subject of our scorn and laughter.
Beaumont and Fletcher.

By powerful charms of gold and silver led,
The Lombard *bankers*, and the 'change to waste.
Dryden.

Whole droves of lenders crowd the *banker's* doors,
To call in money. *Id.*

In vain at court the *bankrupt* pleads his cause,
His thankless country leaves him to her laws.
Pope.

Or at some *banker's* desk, like many more,
Content to tell that two and two make four,
His name had stood in city annals fair,
And prudent dullness mark'd him for a may'r.
Churchill.

Here is again discovered the inhabitant of Cheapside, whose head cannot keep his poetry unmingled with trade. To hinder that intellectual *bankruptcy*, which he affects to fear, he will erect a *bank* for wit.
Johnson's Life of Blackmore.

By an act of insolvency all persons who are in too low a way of dealing to be *bankrupts*, or not in a mercantile state of life, are discharged from all suits and imprisonments, by delivering up all their estate and effects. *Blackstone.*

That *bankruptcy*, the very apprehension of which is one of the causes assigned for the fall of the monarchy, was the capital on which the French republic opened her traffic with the world. *Burke.*

Had every particular *banking* company always understood, and attended to its own particular interest, the circulation never could have been overstocked with paper money. *Smith's Wealth of Nations.*

1. BANK, BANKERS, BANKING. The term bank has two distinct significations; one in reference to commerce, implying a place of deposit or store-house; the other relating to geography and rural economy, implying an elevation of the earth, either natural or artificial; and either below or above the surface of the water, in rivers as well as in the ocean. It is further a technical term in law; the judges of the supreme court of law, when sitting in judgment collectively, are said to sit in bank, banque, or banco. See JURISPRUDENCE. It is also a military term, denoting an elevation of earth within the parapet of a fortification, generally between two and three feet high, or more, according to the height of the parapet; being about four feet and a half lower than the top of the parapet, three feet broad, ascended at intervals by steps, by which the garrison get up to fire on, or to observe the proceedings of, the besiegers.

2. We will now proceed in the endeavour to illustrate the term bank, in conjunction with bankers and banking, as referable to commerce, by showing, 1st, the probable origin or derivation of the term; 2nd, the origin or rise, and nature of banking institutions; 3rd, their progress, practice, and present state, throughout the commercial world; and 4th, their influence and effect on the social and moral relations, and condition of mankind.

3. Bank, in its present application as a commercial term, appears to have had its origin in

Italy, where, in the infancy of European commerce, the Jews were wont to assemble in the market-places of the principal cities and towns, seated on benches, ready to lend money; first on the reputation and written bond or acknowledgment, singly or jointly, of borrowers; but (as will be more fully shown hereafter), as there is in the lending and borrowing of money an immutable tendency to demoralise and derange society, confidence and reputation soon became mere bye-words; and, instead of bonds and written obligations, money was only lent upon the security of commodity or produce, by which localised places of deposit or storing became necessary; and hence, banking, in its origin, bore an analogy to our present system of pawnbroking; while the term bank is supposed to have been derived from the benches and tables in the market-places, at which the money-lenders used to transact their business; the Italian word banco, signifying a bench, derived probably from the Greek word τραπεζα, signifying both a bench and a table, as does also the Spanish word banco; in reference to which the money-lenders obtained the name of benchers or bankers; the Jews of Lombardy being among the first people in Western Europe who carried into practice the principle of lending money on the security of commodity; their repositories partially obtained the name of Lombard-houses.

4. The Lombards were a Scandinavian tribe, who first figure in history about the year 378; but it was not till 568 that they established themselves in Italy; at which period they made Pavia the capital of their kingdom. It must have been, therefore, subsequent to this period that banking institutions assumed any thing like a permanent character. Lending and borrowing, however, appear to have prevailed in all ages, or long before the intervention of money, to facilitate the interchange of commodities; and in all ages, as in the present day, appears to have been productive of extortion and social derangement: see the Mosaic code, Exodus, ch. xxii. v. 14 and 22, and Deuteronomy, ch. xxiv, v. 6 and 10, and by the narrative of St. Matthew, ch. xxi, v. 12, it will be seen that tables in the market or public places were in use in his day, for the accommodation of money-lenders.

5. The restless disposition of the Lombards tended to excite a spirit of activity and enterprise throughout all the Italian states; by which the people of those countries became the merchants or distributors of the products of Asia over all the western and northern parts of Europe. It was towards the close of the seventh century, after the Mahommedans had obtained possession of Egypt, that the chief depôt of the products of the east was transferred from Alexandria to Constantinople, and afterwards to Venice, that commerce began to resolve itself into a more regular system than had ever before been practised, and a methodical and demonstrative order of keeping accounts was devised and adopted. See BOOK-KEEPING. This, in the progress of time, elicited new ideas on the economy of payment; and about the middle of the twelfth century the bank of Venice, so long celebrated throughout the commercial world, and which may be regarded as the foundation of the present system of banking, was established; and had the operations of the bank of Venice been confined to the legitimate object of facilitating commercial interchange, its socialising capabilities would have rendered it worthy of the celebrity it so long enjoyed; but, whilst the principles of its economy are entitled to the highest admiration, it seems to have been established in tyranny, with a view to political aggrandisement, and throughout the whole course of its career to have been perverted to the worst of purposes.

6. It was the desolating system of the crusades, and not the socialising principle of facilitating commercial interchange, which gave rise to the bank of Venice. The first crusade embarked from the shores of the Adriatic, under the auspices of Pope Urban the Second, in 1095; and from the ascendancy and influence which the Venetians, by their extensive commercial intercourse, had then acquired over every part of Western Asia and Europe, they became the principal agents of the crusaders, as well for the wealthy individuals who embarked in those chivalrous exploits as for the several governments to which they respectively belonged. The fruits of extortion, so likely to result from such a system, excited the cupidity and avarice of the Venetian senate, which led, in 1176, some say in 1157, to the establishment of the bank, under the authority and pretended guarantee of the state, the crusading agency previously having rested exclusively with individuals.

7. The original subscription fund of the bank of Venice was 2,000,000 Venetian ducats, equal to £433,333; but, by a solemn edict of the senate, the whole trading community of the republic were compelled to deposit their money in the bank, with which a credit was opened equal to the deposit made, which could only be made available for transfer, so that not only the subscribed capital but also the aggregate amount of the deposits resolved themselves into a national debt. The whole amount of the intrinsic money, subscribed and deposited, having been applied by the senate towards aiding the views of the crusaders, and other external purposes, an ideal capital, or mere denomination of amount was thus created to adjust the operations of commercial interchange.

8. Whether the transfers at the bank in the early period of its establishment required personal attendance, as is the case in transferring the national debt-stock at the bank of England in the present day; or whether effected, on written orders corresponding to the checks in the present English practice of banking; does not appear: but, be that as it might, derangements in the social economy of the state soon ensued; the agio or difference between the current money, and transferable amounts at the bank, attained the rate of thirty per cent. Yet such was the insidious and illusive nature of the bank system, that the bank increased in popularity in proportion to the extent of the derangement which ensued; the inconvenience frequently occasioned in the minor transactions of commerce, as well as on occasions of citizens or strangers requiring money to defray the expenses of foreign journeys,

led in the course of time to the bank paying out money. Yet such was the influx of money, which the crusading armaments brought from all parts of western Europe, that after the system of making payments in money was practised, the deposits always exceeded the demands.

9. At a later period, when the Venetians themselves turned crusaders against the Turks, the subscription-fund of the bank was increased to 5,000,000 of ducats; the whole of which was made use of by the senate, to aid them in their operations of warfare; and, as previously stated, throughout the whole period of its career, it was made an instrument of aggression in aid of political aggrandisement: yet such was the fortuity of circumstances, and, for several centuries having no rivalry, its integrity does not appear ever to have been questioned; the derangements occasioned by the fluctuation of the agio led ultimately to an edict of the senate, fixing it at twenty per cent., at which rate it continued up to the period of the extinction of the republic in 1797, see VENICE.

10. In the fourteenth century the Genoese began to rival the Venetians in their commerce, and in 1345 a bank was established at Genoa; but the more favorable local position of Venice retained for it an undiminished political importance, and although the Genoese were very successful in their commercial career, their bank, relatively to that of Venice, was an insignificant establishment; it nevertheless was enabled, in the fifteenth century, to advance considerable sums to Spain, and other governments; but in 1751 it was deemed insolvent to a very considerable amount, and in 1798 the establishment was finally dissolved and broken up by Buonaparte.

11. No further progress appears to have been made in the formation of banking institutions, until after the discovery by the Portuguese, in 1497, of the passage to Asia by the Cape of Good Hope; and even then, more than a century elapsed before another bank was established. It was at the commencement of the seventeenth century, when Amsterdam had become the chief mart of European commerce, that a bank was established in that city in 1609; and, as the circumstances which led to, and the conduct which dictated, the formation of this bank, appear to have been purely commercial and social, void of all speculative and political influence, and its economy essentially different from either those of Venice or London, it merits the most ample elucidation of the details of its system on our part, and the utmost attention on the part of the enquiring reader.

12. Banking, in its economy, resolves itself into three distinct orders of practice, viz. 1. of deposit, transfer, and agency; 2. of discount, simply; and, 3. of discount and circulation: a banking establishment may, therefore, be formed for carrying on either any one of these orders of practice separately, or two, or all collectively; and either, and all of them are liable to be made instruments of oppression by partial application, or by perversion to impolitic and bad purposes: a more ample elucidation of the details of each order of practice will appear hereafter (see section 14.), the analysis being exhibited in this place, that the distinctive character of the bank of Amsterdam may be the better understood.

13. The circumstances which gave rise to the establishing of the bank of Amsterdam, were the great variety of clipped and debased coins which its extensive commerce, at the close of the sixteenth and commencement of the seventeenth century, brought into that city. The constant variations of value of these coins occasioned continual disputes and inconveniences in the adjustment of payments, more especially so in the payment of foreign bills of exchange; to obviate these disputes and inconveniences, it was, that the bank was established in 1607, on the legitimate and social principle of deposit, transfer, and agency; the security of the deposits being guaranteed by the corporation of the city, by whom its managers were appointed, and who thereby constituted themselves the agents of the establishment; the expenses of which, and its management, being defrayed by fees on opening of accounts, transfers, &c. This system or practice of banking, it will be seen, requires no subscribed or fixed capital.

14. The bank of Amsterdam received coins of all descriptions at a fixed value, according to their weight and fineness, deducting an amount equal to the expense of coinage into the standard coin of Holland; not that the various coins so paid in should be converted into standard coins, but that a credit should be placed on the bank books to such an amount, after the seignorage and fees had been deducted; the amount so credited then constituted bank-money. It was in the next place enacted, that all payments of 600 guilders, = to £52. 10s., in amount, and upwards, whether on internal or foreign account, should be made in bank money; and as these regulations immediately occasioned an agio or difference of value between bank-money and current money, it as immediately became compulsory on the part of every man of business either to open an account at the bank, or to subject himself to the caprice of a fluctuating agio, to enable him to make his payment through the medium of those who had an account.

15. The distinction between the practice of the bank of Amsterdam and the bank of Venice, is this, viz. That the bank of Venice appropriated its subscribed capital, as well as part of its deposits, to external purposes, and created an ideal sum by means of transfers to a corresponding amount, whereby to adjust the internal payments of the public; whilst the bank of Amsterdam retains its deposits within the walls of its own establishment; and when we come to treat of the practice of the bank of England, that will be found to present additional features of practice deserving the utmost possible attention, as well in reference to a comparison with the practice of the banks of Venice and of Amsterdam, as for the influence and effects of its own operations upon the general interests of the country at large.

16. In addition to the transactions of the bank of Amsterdam, as detailed in sect. 14, the bank also gives credit on its books upon deposits of gold and silver bullion, at the rate of five per cent. below the mint price of the bullion. In making these deposits, which are made more for

safe keeping, and the view of reserving them for articles of merchandise, than for conversion into coin, the bank grants a recipice, receipt, or warrant, entitling the holder to take out the bullion again at any time within six months, upon transferring to the bank an amount of bank money equal to that for which credit had been given in its books when the deposit was made, and upon paying one-fourth per cent. for the keeping, if the deposit was in silver, and one-half per cent. if it was in gold; the recipice expressing, that in default of such payment, upon the expiration of the term of six months, the benefit of the recipice becomes forfeited to the bank, while the amount credited against the deposit resolves into bank-money; leaving a profit to the bank proportionate to the difference between five per cent. below the mint price, and the value of the bullion in the market.

17. This species of deposits are, in the first instance, more generally made when the mercantile price of bullion is so far below the mint price as to become an article of speculation, and the profits to the bank upon this branch of its business are considerable, by the forfeiture of some of the recipices; but more particularly so from the frequent renewals. The creditors of the bank, in bank-money, and the holders of recipices, are regarded by the bank as two distinct classes of creditors: hence the creditor in bank-money, having no recipice, cannot draw out bullion without first going to market to buy a recipice, nor can the holder of a recipice draw out his bullion, in the event of his having sold the bank-money assigned to him on making the deposit, without first going into the market to repurchase bank money, and reassigning the same to the bank.

18. In a city of extensive and complicated commercial interchange, like Amsterdam, these regulations of the bank necessarily occasion continued demands for both bank-money and bullion, and gave rise to a system of jobbing and trick, precisely similar to the jobbing and tricking in time bargains upon the stock exchange in London; and at one period the agio was wont to fluctuate from eight to ten per cent. To keep it within certain bounds, however, the bank of Amsterdam resolved at all times to grant 100 of bank for 105 of current money; or rather to sell bank-money at an agio of 5 per cent. In consequence of this resolution, the agio was prevented ever exceeding that rate; and the fluctuation now seldom exceeds 2½ per cent. between 1½ and 4.

19. In addition to the seignorage deducted on first opening an account with the bank in money, see sect. 14, a fee of ten guilders, = to 17s. 6d., is also charged; and for every renewed account, 3 guilders 3 stivers; for every transfer, 5 stivers, = 2d. $\frac{1}{10}$ of a penny, and in order to discourage a multiplicity of small transactions, if the transfer is for less than 300 guilders, the charge is six stivers; for neglecting to balance accounts regularly twice a-year, a fine of twenty-five guilders is exacted; and in case of attempting to overdraw an account, a fine of 3 per cent. on the sum so attempted to be overdrawn is also levied, in addition to setting aside the order. These several fees, fines, and deductions for seignorage, together with the profits which occasionally arise by the sale of bank-money, to maintain an equilibrium in the agio, and the forfeiture of bullion recipices, produce a considerable revenue to the city, over and above what suffices to defray the expenses of the establishment. Public utility, however, and not revenue, was the original, and up to this time, has continued the ruling object of the establishment, and the revenue derived from it is the natural result of its invariable rule of practice, which, whether the best that can be devised or not, its certainty and impartiality has obtained for it the sanction and confidence of all who have been concerned in it.

20. How far the system or practice of the bank of Amsterdam approximates to perfection or utility will more fully appear as we proceed to illustrate the various practices of banking in England, and in other parts of the world. The direction of the bank of Amsterdam is vested in four reigning burgo-masters (aldermen), who are changed every year. Each new set of burgo-masters, on induction to their charge, are conducted to the bank, inspect the deposits, compare them with the books, and acknowledge the same upon oath, delivering it over at the end of the year with the same formal solemnity to the set which succeeds; and highly to the credit of the corporate body of the city of Amsterdam, both in its collective, and in its individual capacity, in reference to the direction of the bank, not only has no malversation been proved, but no imputation ever brought against them; nor have the political convulsions, by which Holland has at times been surrounded, and in which it has been involved, ever induced the bank to swerve from the strict rule of its established regulations; and such has ever been the confidence in the integrity of its director, that it has at times been the depositary of the money treasure of the opulent individuals of surrounding states.

21. Of the extent of the deposits of the bank of Amsterdam at different periods, the information is very imperfect; it may, at times, probably, have amounted to a sum equal to five, six, or seven millions sterling, and probably more, but on an average they probably have not, at past periods, nor do not at the present time, exceed three to four millions, or from forty to fifty millions of guilders.

22. As commerce extended itself over the north of Europe, banking institutions were established in different parts of Germany, but there were none that obtained any great celebrity, except those of Hamburgh and Nuremburg. That of Hamburgh was established in 1619, on principles, and for objects, not very dissimilar to those of Amsterdam, viz. those of deposit, transfer-agency and public utility. Instead of coin the deposits are made in silver bullion at a given fineness, against which credits are opened, either for transfer, or for withdrawing the bullion at pleasure, subject only to a trifling charge for deposit, or safe-keeping. The general practice of the bank of Hamburg is less formal, and more simple, than that of Amsterdam; and has been productive of great advantage to the city, and has maintained an unsullied integrity. The expenses of its management have been, and will continue to be, defrayed by fees, or transfers, similar to those of Amsterdam. It was plundered of a considerable portion of its deposits by the

French general, Davoust, in 1813, a part of which were restored by the Bourbon government at the peace of 1815.

23. In 1635 the bank of Rotterdam was established, under regulations somewhat different in detail from those of either Amsterdam or Hamburg, but upon the principle of deposits, transfer, and agency.

24. About the sixth or seventh decenary of the seventeenth century, an individual of the name of Palmshut, in Stockholm, established a bank for the purposes of exchange, discount, and circulation; that is, he bought and sold bills of exchange, lent money at interest, and issued notes, which became a circulating medium, or token of interchange, for the amount they represented; naturally enough, although Palmshut originally possessed, relatively, great resources, derangement and embarrassment soon overtook him, but inflated with his notions of ideal wealth, he applied to the king, Charles XI., whom he induced to become his patron in the formation of a royal bank, which, under Palmshut's directions, soon obtained a general confidence; and, in 1688, the direction was transferred to the assembly of the states of the kingdom, the king declaring himself, and his successors, protectors of the bank, but renouncing all interference in the disposal of the money. The states being thus declared guarantees, proprietors, and directors, under the regulations which they established, the bank became a bank of deposit, discount, and circulation. Depositors were allowed interest at the rate of 6 per cent.; and the deposits, together with notes of circulation, appropriated to discounts, on collateral securities, at the rate of 8 per cent. The king's revenues were also deposited at the bank free of interest. The institution immediately became popular, and all who had surplus money, in every part of the kingdom, poured it into the bank, so that, by the close of the century, the interest on deposits had been progressively reduced from 6 to 2 per cent., and on discounts from 8 to 3 per cent.

25. Like all institutions founded on speculative principles, the bank of Stockholm was soon destined to experience a reverse of fortune, and to become an instrument of political perversion. The chivalrous exploits of Charles XII. led to such a drain of the intrinsic resources of the bank, during the four years, 1714—1717, the period of the king's residence in Turkey, after the battle of Pultowa, and when the corrupt and profligate Goertz was minister of finance, that the revenues usually deposited with the bank, were unequal to discharge even the interest, much less contribute towards any repayments. This dilapidation of the resources, and credit of the bank, led to the mortgaging of other revenues of the crown, and a declaration on the part of the king, that no further drain should be made upon the bank until its resources and credit were fully restored: these measures produced a partial reaction in favor of the credit of the bank; but it proved only temporary, until an expedient of the minister Goertz unexpectedly diverted all the disposable wealth of the kingdom into the bank.

26. Whilst the declaration and resolve of the king to restore the resources and credit of the bank were adhered to, it deprived Goertz of the adequate funds to carry on his political intrigues, and to supply the king with sufficient means to maintain his regal importance; under these circumstances, he resorted first to fines and penalties, and ultimately to a species of confiscation, by demanding all the plate, jewels, and coin in the kingdom to be placed at his disposal, for which he gave copper tokens, representing ninety-six times the intrinsic value of the metal, (paper money in effect.) This measure led all those who possessed such disposable means to confide in the royal pledge, rather than yield to the exaction of Goertz. And they consequently in secret conveyed all their treasure to the bank. Goertz, chagrined at being thus disappointed, applied to the king and advised him to seize all the treasure deposited in the bank; but the king refused to comply, and prohibited Goertz from even making any proposal on the subject, contrary to the pledge which he had solemnly made.

27. This decision of the king reinstated confidence in, and fully re-established, the resources and credit of the bank, so that on the declaration of war against Russia, in 1741, the bank presented the king with a donation of 100,000 Swedish silver dollars, equal to about 7600, and supplied another 500,000 dollars, as a loan without interest, and subsequently to that period it frequently advanced considerable sums to the crown, and to the board of manufactures under the guarantee of the states.

28. The resources and credit of the bank being thus re-established, it was divided into two departments, *læne* and *wexel*, or loan, and exchange banks; the former corresponding in its practice with the practice originally established in Lombardy, (see sect. 3.) and precisely similar in principle to the practice of pawnbroking in England at the present day. Whilst the practice of the wexel or exchange bank, is that of deposit, discount, and circulation. The loan bank lends money on gold and silver bullion, copper, and its own stock, to their full value, at the rate of three per cent. and on three-fourths of the value of iron, at the same rate of interest; and on lands and houses at the rate of six per cent. four for interest, and two as a sinking fund, until the whole sum advanced is repaid. Jewels were at one time advanced upon, but the bank having once been defrauded to a considerable extent by them, resolved never again to make advances on those articles.

29. The wexel or exchange bank receives money on deposit, for which it allows two per cent. and issues notes, with which, together with its deposits, it discounts bills of exchange; this practice, which is the one originally pursued by Palmshut, (see sect. 24.) involves risk, and leads to certain loss; the issuing of notes, having no intrinsic value, sustains the loss as long as the notes retain confidence; but when that fails, derangement necessarily ensues, all this befell the wexel or exchange bank of Stockholm, within the short space of twenty-five years; and in 1766 the bank was on the verge of bankruptcy and final dissolution, when, by the interference of the

states, a loan of three millions of rix dollars, equal to about £700,000, was raised to liquidate the excess of notes in circulation; since the period of 1766 successive regulations have been resorted to, to preserve the credit of the bank, and a committee, composed of a certain number of persons from each of the three states of the kingdom, viz. the nobles, clergy and burghers, has been appointed, to inspect triennially the general state of the bank and its accounts.

30. Under the guardianship of the States, the wexel bank of Stockholm retains its place among the other institutions of the kingdom, but it has no importance externally, nor does the extent of its operations equal the operations of several private banking establishments in some of the provincial towns in England; it is the various kinds of practice of banking, however, and not the extent of the operations, which most demand attention; and on that ground it is, that the bank of Stockholm has here been enlarged upon, much beyond what the extent of its operations would otherwise have rendered necessary.

31. Bank of England.—We now come, in order of time, to treat of the bank of England; an establishment, whether considered with respect to the magnitude of its operations, or its influence upon the social relations of mankind, without a parallel in history; and from the period of its foundation, but more especially since the period of 1793, it has become so interwoven with the government, and the collective interests of the nation, as to render it difficult to treat of one, without entering largely into the details of the other. We will endeavour, however, to confine our elucidation of the bank, as far as it is connected with the government and the nation, as much as possible within the limits of those circumstances of the nation, in which the character and interests of the bank have been more immediately involved.

32. Although by its peculiar constitution, and terms of its charter, as well as in all the details of its practice, the bank of England appears to be an independent trading company, and although its operations combine all the various kinds of practice in banking (except the original one, of lending money on pledges,) viz. exchange, deposit, transfer, discount, agency, and circulation, and each and all of these, on a more extended scale than ever was, or perhaps ever will be, practised in any other establishment, it is, and ever has been, from its foundation, materially connected with all the financial operations of the government, and partakes therefore far more of a political than of a commercial character. This indeed has been considered by some writers and financiers an alarming excrescence on both our commercial and political systems. But we proceed to illustrate the progress of its career.

33. It appears to the writer of this paper that instead of desirableness and necessity dictating its origin, and instead of being founded like the bank of Amsterdam (see sect. 11) on the broad and social basis of public convenience and public utility, the origin of the bank of England was a mere project, which fortuitous circumstances alone have hitherto protected in an unexpected manner. The original projector of this memorable institution was a Mr. W. Paterson, who, after numerous applications on the subject to the privy council, at length succeeded in the year 1693, in obtaining its consent to the project, and an act, 5th and 6th William and Mary, c. 20, for granting to their Majesties several rates and duties upon tonnage of ships and vessels, and upon beer, ale, and other liquors, for securing certain recompences and advantages in the said act, mentioned to such persons as shall voluntarily advance the sum of £1,500,000 towards carrying on the war against France! Section 19th of the said act, enacts that 'Their Majesties may make commissioners take subscriptions for £1,200,000. The sum of £100,000 to be annually appropriated to the subscribers;' and by section 20th it was further enacted that, 'Their Majesties may appoint rules for transferring, and make the subscribers a corporation by the name of 'The governor and company of the bank of England.''

34. Under the authority of the aforesaid act, subscriptions were immediately entered into, and before the 1st of Jan. 1694, the whole sum was subscribed, and on the 27th of July, in that year, the charter of incorporation was executed, its duration being limited to eleven years, viz. from the 1st of August, 1694, to the 1st of August, 1705, after which date the corporation was determinable upon twelve months notice, and repayment of the £1,200,000 advanced. At this time (1694), the rate of interest was 6 per cent. per annum; but by the terms of the contract for the above £1,200,000, the corporation were to receive 8 per cent. per annum, and £4000 per annum for management, or trouble of transferring and apportioning the interest among the numerous subscribers.

35. Such were the circumstances, and such the origin of the bank of England, neither of which it will be seen bear any analogy to the circumstances and origin of the banks of Venice, Amsterdam, Hamburgh, or Stockholm; but before we proceed further in exhibiting the progress of the bank of England, it may be well to show what the state and practice of banking in England was, prior to the formation of that establishment; and when the circulating medium of the country was exclusively metallic. At an early period of England carrying on an external commerce, when she received from Holland and Germany almost every species of manufacture in exchange for grain and wool, and other productions of the soil and mines, England then had her loan banks, or Lombard houses, for lending money on pledges (see sect. 3), hence the etymology of Lombard-street, in the vicinity of the Royal Exchange, in London. At a more recent period the goldsmiths became the bankers, first, merely as places of deposit or safe keeping, and afterwards for discount; and for more than a century prior to the establishment of the bank of England, and circulation of paper money, the goldsmiths held the same rank and importance in commerce, and exercised similar functions, as the private bankers do at the present day. But the establishment of the bank of England did not merely divert the transactions of private deposit and discount into new channels, but it will be

seen, as we proceed, that it had the effect of changing the whole social economy of the state

36. The Bank of England being established, the charter directed that its management should be vested in a governor, deputy governor, and twenty-four directors, to be elected by the holders of the stock, a clear possession of £500 of which for six months constitutes a qualification to vote, the qualification of a director being the possession of £2000 of the stock, of a deputy governor, £3000 of do. and of a governor £4000 of do. So far as we have here described the transactions of the Bank of England, it seems confined to the mere raising of a loan of £1,200,000, for the use of government, at 8 per cent. per annum, and which was in fact, the foundation of the FUNDING SYSTEM, or NATIONAL DEBT; to prevent enlarging upon which here, see each of those subjects under their respective heads, and in conjunction with them see also CIRCULATING MEDIUM, EXCHANGE, BILLS OF, EXCHEQUER BILLS, MONEY, PAPER MONEY, and TALLIES. Of the nature and extent of the practice of the Bank of England, in deposit, transfer, discount, and circulation, during the early period of its establishment, but little seems to be known; and, indeed, for some time, its transactions seem to have been very much confined to trading in the government securities, and notes of its own circulation. At the Exchequer, then, as is still the case, accounts were kept by tallies, similar to accounts of bakers in those parts of the country where the weight of the loaf varies, and the money price remains fixed; notches are cut in a piece of stick, to denote so many loaves of bread, the stick is split, the buyer holding one part and the seller the other, so with the accounts of money at the Exchequer of enlightened England, at the period of establishing the Bank of England, and so the practice continued in 1826.

37. The first and second years after the establishment of the Bank, these Tallies were a trading and speculating commodity, as stock and exchequer bills are at the present day, and such was the state of the credit of the nation at that time that the tallies were at a discount of 20 to 40 per cent. against the sealed notes of the Bank, and the notes of the bank at a discount of 20 per cent. against the standard coin of the realm. With the view of equalising these disparities of value between the bank and national securities, and the standard coin of the realm, an act was passed in 1697, 8 and 9 Will. 3 cap. 20, empowering the Bank to receive subscriptions for the enlargement of their stock, four-fifths in tallies, and the remaining fifth in Bank notes. The amount of tallies ingrafted under this act was £1,001,171. 10*s.* subject, like the original subscription to an interest of 8 per cent. per annum, and the charter was extended to the 1st of Aug. 1710. In 1708, another act was passed, 7 Ann. cap. 7, under which the bank further lent the government the sum of £400,000 without interest; hereby reducing the interest on £1,600,000 to 5 per cent. The Bank at this time held Exchequer bills to the amount of £1,500,000, which, with an arrear of interest of £275,027. 17*s.* 10½*d.*, were cancelled (funded) at the rate of 6 per cent. per annum. For these acts of condescension, the charter of the Bank was extended to Aug. 1, 1732, and the company authorised to take in subscriptions, to double their capital. In 1709 a call of 15, and in 1710 a further call of 10 per cent. was made, and in 1713 another act was passed, 12 Ann. cap. 11, extending the charter to Aug. 1, 1742, then, as before, determinable after twelve months notice, and repayment by the government, of all sums borrowed.

38. In 1717 another act was passed, 3 Geo. I. ch. 8, authorising the funding of a further amount of exchequer bills of £2,000,000, at five per cent. per annum; to which rate the interest on £1,775,027 was also reduced after midsummer 1718. In 1722, by another act, 8 Geo. I, cap. 21, the bank was authorised to purchase stock of the South Sea Company to the amount of £4,000,000, which stock bore an interest of five per cent. per an. but was reduced to four per cent. after midsummer 1729. To effect this purchase the capital was increased £3,400,000; and in 1727, pursuant to the act of 1 Geo. II, cap. 8, £1,000,000 of the £1,775,027. 17s. 10½d, funded in 1708, at six per cent, was paid off, and the interest on the £2,000,000, funded in 1717, reduced from five to four per cent. and under the authority of the same act; in 1728, £1,750,000 was further advanced to government at an interest of 4 per cent.; and, in the following year, pursuant to the act of 2 Geo. II, cap. 3, the remainder of the £1,775,027. 17s. 10½d. funded in 1708, together with £500,000 of the amount funded in 1717, was paid off by the government; who borrowed, under the authority of the said act, the sum of £1,250,000, at an interest of 4 per cent. per annum from midsummer 1729.

39. In 1738 another act was passed, 11 Geo. II, cap. 27, authorising the paying off a further portion of the bills funded in 1717, to the amount of £1,000,000; and in 1742, by the act of 15 Geo. II, cap. 13, £1,600,000 was advanced to government without interest, on condition of the bank being authorised to increase their capital stock, and the charter being extended to Aug. 1, 1764. The capital stock was accordingly increased £840,004. 5s. 4d. The pretension set up in reference to this £1,600,000, was the reduction of the rate of interest on the original £1,200,000, and the £400,000 advanced in 1708; by the receipt of which latter sum the interest on the £1,600,000 was reduced to 6 per cent.; and, by the receipt of a corresponding sum without interest, it made the interest on the £3,200,000 equivalent to 3 per cent. But this seeming reduction in the rate of interest is a delusion; for, however anomalous it may at first seem, as the rate of interest progressively became reduced from 8 to 3 per cent, the pressure of the exaction on the people, as will clearly appear hereafter, progressively and virtually increased. So far, therefore, from the £1,600,000 being entitled to be regarded as a boon to the public, it appears to us as neither more nor less than a bribe to reconcile an unsuspecting people to an extension of the charter.

40. In 1746 another act was passed, 19 Geo. II, cap. 6, authorising the funding of exchequer bills, issued in anticipation of the tax on licenses

for retailing spirituous liquors, to the amount of £986,800, at the rate of 4 per cent. per annum, and for authorising the bank to increase their capital stock 10 per cent. which was done in pursuance thereof. The total sum advanced by the bank to the government, now amounted to £11,686,800, and the capital on which the stockholders divided was £10,780,000. Of the amount advanced to government £3,200,000, (see preceding section) was at an interest of 3 per cent.; part of the bills funded in 1717 remained at 5 per cent. and the remainder at 4 per cent.; in reference to which, in 1749 an act was passed, 28 Geo. II, cap. 1, determining that from Christmas 1750 the interest on the whole £8,486,800 should be reduced to 3½ per cent., and from Christmas 1757 it should further be reduced to the same rate as the £3,200,000, viz. 3 per cent. Fifteen years now elapsed without any change in the terms of the charter, or accounts with the government, when in 1764, pursuant to the act of 4 Geo. III, cap. 25, the bank advanced £1,000,000 for two years without interest, and gave bonus to the exchequer of £110,000, for the extension of their charter to the 1st of August 1786.

41. In 1781, pursuant to an act passed that year, the charter was further extended to the 1st of August 1812, and £862,400 more added to the capital stock, in return for the loan of £2,000,000 for three years at 3 per cent.; and in 1800, pursuant to an act of 48 Geo. III, the charter was further extended to the 1st of August, 1833, on condition of advancing £3,000,000, for the service of the year 1800, on exchequer bills, to be discharged without interest in 1806. Such was the state of the bank of England in 1800 in reference to its permanent advances to the government and extent of its permanent capital, which we will here briefly recapitulate. In the session of parliament, 1822, an account of the total amount of debt due to the bank of England, distinguishing funded from unfunded, the periods when contracted for, &c. &c. was laid before the house (paper No. 190), which, up to the period of 1746, will be seen to correspond with the amounts previously enumerated, viz:

Anno.	Acts.		Amount.	
1694	5 W. & M. c. 20	Original Subscription	£1,200,000	
1697	8 & 9 Wm. c. 19	Ingrafted Tallies	1,001,171	
1708	7 Anne, c. 7	Exchequer-Bills cancelled . . .	1,775,028	
——	——	Advanced without interest . . .	400,000	
1717	3 Geo. I. c. 8	Exchequer-Bills cancelled . . .	2,000,000	
1722	8 —— c. 21	Transfer from South-Sea Company	4,000,000	
1723	1 Geo. II. c. 8	Advanced	1,750,000	
1729	2 —— c. 3	Ditto	1,250,000	
1742	15 —— c. 13	Ditto	1,600,000	
1746	19 —— c. 6	Exchequer-Bills cancelled . . .	986,800	
		Total Sum advanced . . .	——	£15,962,999
Paid off in				
1707	Ingrafted Tallies		£1,001,171	
1728	Part of £1,775,028		1,000,000	
1729	Remainder of ditto		775,028	
——	And part of £2,000,000 of 1717		500,000	
1738	Further part of £2,000,000 of 1717		1,000,000	
			——	4,276,199
	Nett amount of permanent Debt in 1746, and as it stood up to 1816			£11,686,800

42. In 1816 a further advance was made of £3,000,000; and in 1823 a contract was entered into for the bank to advance the government the sum of £13,089,419, in thirteen irregular instalments, between the 4th of April, 1823, and the 6th of July, 1828, in consideration of an annuity of £585,740 for 44 years, from the 10th of Oct. 1823. The first of these transactions resolves itself into a bonus to the bank equivalent to from £7,000,000 to £8,000,000; the latter being to a certain extent a contingent transaction, may prove disadvantageous to the public to the extent of from five to ten or fifteen millions, and under any circumstances that can possibly occur is equivalent to another bonus to the bank of at least £2,000,000. The first transaction is simple and conclusive, and will be seen to involve moral as well as pecuniary features, demanding the very serious consideration of the public. The other is one of the most complex and equivocal transactions which the whole history of British financiering, with all its profligacy and tortuosity, exhibits since the commencement of war in 1793. A more circumstantial account of the nature of both transactions will be found in their order of time further on.

In the mean time, the following is a recapitulation of the augmentations of capital, on which dividends were made to the proprietors of stock, viz.

Anno.		Augmentation.	Aggregate.
1694	Original Subscription	£1,200,000	£1,200,000
1697	Ingrafted Tallies	1,001,171	2,201,171
1708	Doubled	2,201,172	4,402,343
1709	Call of 15 per cent.	656,204	5,058,547
1710	Ditto of 10 per cent.	501,449	5,559,996
1722	Additional Subscriptions	3,400,000	8,959,996
1742	Ditto Ditto	840,004	9,800,000
1746	Call of 10 per Cent.	980,000	10,780,000
1781	Augmented	862,400	11,642,400

43. And the following shows the rate and amount of dividends, per annum, at different periods, up to 1807, viz.

Anno.	Rate per cent.		Amount annually divided.
1694—1696	3 years	8 (actual)	£96,000
1697—1707	11 ——	9 ——	198,105
1708—1729	22 ——	9 to 5½ (estimated)	450,000
1730—1741	12 ——	6 & 5½ (actual)	520,200
1742—1746	5 ——	6 & 5½ ——	563,000
1747—1752	6 ——	5 ——	539,000
1753———	1 ——	4½ & 5 ——	512,050
1754—1763	10 ——	4½ ——	485,100
1764—1766	3 ——	5 ——	539,000
1767—1780	14 ——	5½ ——	592,900
1781—1787	7 ——	6 ——	698,544
1788—1806	19 ——	7 ——	814,968
1807—1815	9 ——	10 ——	1,164,240
1816—1823	8 ——	— ——	1,455,300
1824—1826	3 ——	8 ——	1,164,240

44. Thus, as stated in sect. 39, it is seen, that whilst the bank affects to lend the public its money at 3 per cent. per annum, the public, since 1807, have virtually been taxed at the rate of 10 per cent. to the extent of £1,164,240 per annum; nor is this all, for, by a return made to parliament in the session of 1819 (Paper, No. 347), in addition to the above exorbitant exaction, resulting from the illusive and peculiarly involved nature of the transactions of the government with the bank, it appears that the following sums were divided among the stock-holders as bonuses, viz.

Anno.		Amount.
June, 1799	10 per cent. on the £11,642,400 . . .	£1,164,240
May, 1801	5 ——— on ditto	582,120
Nov. 1802	2½ ——— on ditto	291,060
Oct. 1804	5 ——— on ditto	582,120
—— 1805	5 ——— on ditto	582,120
—— 1806	5 ——— on ditto	582,120
	Total as Bonus . . .	£3,783,780

And profuse as all this may seem in favor of the holders of bank-stock, and oppressive as it must be to the public, it sinks into comparative insignificance when compared with the transactions of 1816 and 1823, the nature of which shall be elucidated by and by; it seeming first desirable to take a retrospective view of the transactions of the bank, independent of its permanent advances and augmentation of its permanent capital.

45. By the stat. of 6 Anne, cap. 22, it was enacted, 'for securing the credit of the Bank of England, that no other banking company in England should consist of more than six persons, empowered to issue bills or notes payable on demand, or for any time less than six months.' And the act of 15 Geo. II. cap. 13, which extended the privileges of the charter to 1764, also enacted, that the acts of 7 and 12 Anne, and all all other acts for determining the corporation, should be void; and that the governor and company of the bank should remain a body corpo-

rate and politic for ever, subject to such restrictions and regulations as were contained in the acts and charters then in force, and by the same statute it was also further enacted, 'that persons forging, counterfeiting, or altering, any bank-note, bill of exchange, dividend, warrant, or any bond or obligation, under the company's seal, or any indorsement upon it, or knowingly uttering the same, shall suffer death, without benefit of clergy;' and further, 'that the company's servants breaking their trust to the company, shall also suffer death, as a felon, without benefit of clergy.'. The same statute also further enacts, 'that when at a court of directors of the bank, neither the governor nor deputy shall attend in two hours after the time appointed for business, then any thirteen or more of the directors may choose a chairman for the time for the despatch of business, and that such court shall be as valid as if either the governor or deputy-governor had duly attended.'

46. As stated in sect. 36, the information is imperfect as to the extent of the transactions of the Bank of England in deposit, transfer, discount, and circulation, during the earlier period of its establishment; nor does it appear that the notes of the bank were ever at a discount against the standard coin of the realm after 1697, until 1798. In addition to the monies permanently advanced to the government, it was the practice of the bank to advance money in anticipation of the land and malt taxes; and to make other temporary advances on exchequer-bills and other floating securities; we have not been able to obtain any circumstantial account of the extent of these advances at an earlier date than 1777; from which period an account of advances by the bank to government on land, malt, exchequer-bills, and other securities, on the 25th of February on each of the twenty years preceding the 25th of February, 1797, was laid before parliament, vide Appendix, second Report of the Select Committee on the Expediency of the Bank resuming Cash Payments, 1819. Commons reprint, fol. 315, of which the following is a copy, viz.

On the 25th Feb.	Land and Malt.	Exchequer-Bills.	Treasury-Bills.	Total.
1777	£4,912,000	£2,500,000	———	£7,412,000
1778	5,251,000	2,500,000	£2760	7,753,760
1779	5,682,000	2,769,000	15,664	8,466,664
1780	5,613,000	3,104,400	33,582	8,750,982
1781	5,517,000	262,230	49,541	8,188,841
1782	5,659,000	4,289,050	43,628	9,991,678
1783	4,962,000	4,662,200	4871	9,629,071
1784	3,901,000	3,641,000	23,853	7,565,853
1785	3,102,000	3,900,000	28,200	7,030,200
1786	2,307,000	4,303,200	24,672	6,634,872
1787	2,809,000	4,334,200	1696	7,144,896
1788	2,636,000	4,707,400	4299	7,347,699
1789	2,928,000	5,000,200	20,235	7,948,435
1790	2,882,000	5,006,500	20,468	7,908,968
1791	3,334,000	6,247,100	22,878	9,603,978
1792	2,802,000	6,636,600	26,999	*9,839,338
1793	2,698,000	5,939,600	52,359	9,066,698
1794	2,915,000	4,777,600	717,175	8,786,514
1795	4,291,000	4,329,000	2,117,491	11,114,230
1796	5,536,000	5,265,000	540,991	11,718,730

* The totals in each of the five last years include £376,739 lent out of the unclaimed dividends, without interest.

47. The earliest account of the amount of bank-notes in circulation which we have been able to obtain is the following, which was delivered to the House of Commons on the 18th of March, 1797, and exhibits the amount of notes in circulation on the 25th of February, in each of the ten years, 1787—1796, viz.

1787	£8,688,570
1788	9,370,350
1789	9,905,240
1790	10,217,360
1791	11,699,140
1792	11,349,810
1793	11,493,125
1794	10,699,520
1795	13,539,160
1796	11,030,110

As we are now approaching a most important period in the history of the transactions of the Bank of England, it will be well for the earnest enquirer after truth to bear in mind, that the notes in circulation up to the period of 1797, were convertible into gold on demand, at the rate of 77*s.* 10½*d.* per oz.; and when the above statement is compared with the preceding one, of the amount of the temporary advances to the government, and the following one, of the amount of cash and bullion in hand, and bills

discounted, it will be seen that the issue of notes appears to have been regulated more in reference to the amount of the temporary advances to the government, than to the means of paying them in gold on demand, as will be seen by the following statement of the amount of cash and bullion on hand, notes in circulation, bills discounted, and advances to government, on an average in the months of March, June, September, and December, in each of the five years, 1793—1796, viz.

	Cash and Bullion on hand.	Bills Discounted.	Average of Notes in Circulation.	Average of Advances to Government.
1793				
March . .	£3,508,000	£4,817,000	£11,963,820	£8,735,200
June . . .	4,412,000	5,128,000	12,100,650	9,434,000
September . .	6,836,000	2,065,000	10,938,620	9,455,700
December .	7,720,000	1,976,000	10,967,310	8,887,500
1794				
March . . .	8,608,000	2,908,000	11,159,720	8,494,100
June . . .	8,208,000	3,263,000	10,366,450	7,735,800
September .	8,096,000	2,000,000	10,343,940	6,779,800
December .	7,768,000	1,887,000	10,927,970	7,545,100
1795				
March . . .	7,940,000	2,287,000	12,432,240	9,773,700
June . . .	7,356,000	3,485,000	10,912,280	10,879,700
September .	5,792,000	1,887,000	11,034,790	10,197,600
December .	4,000,000	3,109,000	11,608,670	10,683,100
1796				
March . . .	2,972,000	2,820,000	10,824,150	11,351,000
June . . .	2,582,000	3,730,000	10,770,200	11,269,700
September .	2,532,000	3,352,000	9,720,440	9,901,100
December .	2,508,000	3,796,000	9,645,710	9,511,400
1797				
February 26 .	1,272,000	2,905,000	8,640,250	10,672,490

48. By the above statement, it is seen, that with £8,640,250 of notes in circulation on the 25th of February, 1797, £1,272,000 value of gold only remained in the bank, whilst the demand for gold continued daily to increase; under which circumstances, on the 22d of February, a committee was appointed by the privy council to investigate the affairs of the bank, which committee, on the 26th of the same month, reported, that the total assets of the bank, exclusive of the £11,686,800 permanent debt of the government (see sect. 40, 41), was £17,597,298, whilst the whole of the demands upon the bank amounted to only £13,770,390, leaving a clear balance in its favor of £3,826,903, exclusive of the permanent debt due from the government. Upon this report, the privy council instantly issued an order prohibiting the directors of the bank from issuing any more cash (specie) in payment, until the sense of parliament on the subject was obtained. From the statement of £13,770,390 being the amount of demands upon the bank, and £8,640,250 being the amount of notes in circulation, as per statement in the preceding section, it appears that the demands of depositors and other creditors must have amounted to £5,130,140; and in like manner, £17,597,298 being the whole of the assets, and £10,672,490 thereof consisting of claims on the government, £2,905,000 in bills discounted, and £1,272,000 in specie, it leaves £2,727,808 to be assigned to some specified items; including, no doubt the bank premises and probably some other property in fief, in houses or lands, &c. &c. The transactions and state of the Bank of England, as detailed in this section, bring its history down to that eventful and important period when the peculiar nature of its connexion with the government first openly developes itself. To obtain a more comprehensive and distinct view of the subject, the reader will do well to refer to the journals and proceedings of parliament for the year 1797, and to examine the subject attentively, in relation to the nature and amount of the loans, and extent of the revenue and expenditure of the government at that period, as exhibited in Mr. Marshall's Statistical Illustrations of the Finances, Revenues, &c. &c. of the British Empire. See also the articles FUNDING, LOANS, SINKING FUND, and REVENUE, in the subsequent parts of this work.

49. It was on a Sunday evening that the order of the privy council, adverted to in the preceding section, was transmitted to the bank, and on Monday morning the following notice was published by the directors of that establishment, viz.

'*Bank of England, February* 27, 1797.

'In consequence of an order of his majesty's privy council, notified to the bank last night, a copy of which is hereunto annexed,

'The governor, deputy-governor, and directors of the Bank of England, think it their duty to inform the proprietors of the bank-stock, as well as the public at large, that the general concerns of the bank are in the most affluent and flourish-

ing situation, and such as to preclude every doubt as to the security of its notes.

'The directors mean to continue their usual discount for the accommodation of the commercial interest, paying the amount in bank notes; and the dividend warrants will be paid in the same manner.

(Signed) 'FRANCIS MARTIN, Sec.'

50. The consternation of the public at this notification was extreme, but as a proof of the secret workings and illusive nature of the system, a meeting was held the same day at the mansion house, at which the lord mayor (Watson), presided, when the following resolution was unanimously agreed to, viz. 'That we the undersigned, being highly sensible how necessary the preservation of public credit is at this time, do most readily hereby declare, that we will not refuse to receive bank notes in payment of any sum of money to be paid to us; and we will use our utmost endeavours to make all our payments in the same manner.' This singular specimen of subserviency to speculative expediency was signed by the lord mayor and all present, and ultimately obtained upwards of 3000 signatures. We will not here enquire what portion of their names have since been exhibited on the bankrupt or other lists of insolvency; but we must regard the consequences to have been the degradation of an alarming portion of the total population of the kingdom to the rank of paupers, with all the consecutive concomitants of demoralisation and crime.

51. On the same day (27th Feb.), a message was delivered from the king to both houses of parliament, to the following effect, viz. 'That an unusual demand of specie having been made from different parts of the country, on the metropolis, it had been found necessary to make an order of council to the directors of the bank, prohibiting the issuing of any cash in payment, till the sense of parliament could be taken on the subject.' In the upper house, Lord Grenville, who was then secretary of state for the foreign department, moved, 'That the communication from his Majesty should be taken into consideration the following day,' when in pursuance of the motion, after much circumlocution, Lord Grenville stated that he had two motions to submit to the consideration of their Lordships, first, 'That a humble address be presented to his Majesty, to return thanks for his gracious communication, and to assure his Majesty that he might rely with the utmost confidence on the wisdom of parliament, to call forth, in case of necessity, the extensive resources of the kingdom.' This was agreed to, nemine contradicente. The other motion was for 'The appointment of a select committee of nine lords, to examine and report on the outstanding debts against the bank, the state of the funds for discharging the same; the cause that rendered the order of council necessary, and which might justify the members of that house for taking the proper steps for the confirmation and continuance of that measure.' This motion gave rise to considerable discussion, in which the Duke of Bedford moved as an amendment, 'To leave out all that part which related to the committee reporting their opinion on the continuance of the measure.' In support of which amendment, the Marquis of Lansdowne said, 'That noble Lords would do him the justice to recollect, that not one session had passed over, since the fatal commencement of the war in 1793, in which he had not, to use a vulgar but strong expression, bored their Lordships with his prophetic admonitions, and proceeded to illustrate the nature of public credit, by saying, that it was to the people of Great Britain, what the soul of man was to his body. It was pure soul: it was immaterial in itself, and yet it was that which gave to substance its functions. It was not property, for no branch of the body could call it its own. It was not the king's credit, nor was it the credit of parliament; it was public credit, which did not look to security alone as its basis, but which always connected security with punctuality.'

52. The shock which had been given to public credit, the noble marquis stated, proceeded from deep, progressive, and accumulated causes; causes which all thinking, all honest men, had long deplored, and which had grown to a head under the unhappy and ill-requited confidence which had so fatally been placed in the king's ministers. In endeavouring to ascertain the causes that had brought on the dilemma, one cause was manifest; the inordinate increase of expenses, of places, and establishments, in every corner of the empire, which had grown to a height beyond every thing that the mind could previously have conceived; it was, said the noble marquis, incredible and scandalous; the increase of fees, of salaries, of places and pensions, of new boards of commission, and new appointments of all kinds, had not only served to open all the gates of waste and profusion, but to beat down and destroy all the checks of control, and all the means of correction. Waste and extravagance had been systematised; one scene of abuse countenanced and protected another, and all the corners of the earth were witnesses to the ruinous waste of the treasures of the British people. In this strain, with unabated ardor, did the noble marquis continue to depict the fatal consequences which must inevitably ensue from the continuance of such a system, and concluded a most patriotic appeal to the British parliament, by calling upon his compeers to mark his prophecy, and not to disdain his counsel, while yet in time, for said his Lordship, if you attempt to make bank notes a legal tender, then credit will perish. They may go on for a time, but their end is certain ruin. The earnestness and force of this appeal drew the Lord Chancellor from his seat, to state, 'That he had deprecated the idea of forcing bank paper into circulation, by making it a legal tender, and he would take upon himself to say, that it then had never been conceived, that it would be wise or prudent to make bank notes a legal tender. After which, their lordships divided on the amendment of the duke of Bedford; twelve for, and seventy-eight against it. After which the original motion for a committee of enquiry was carried without a division,

53. Similar proceedings took place in the commons on the same day, where, in reply to

some observations by Mr. Fox, Mr. Pitt stated that perceiving some suspicions were entertained that the measure adopted for succouring public credit, was designed to be permanent, he assured the house, 'That nothing could be farther from his intention.' An amendment similar to that of the duke of Bedford, in the lords, was moved in the commons by Mr. Sheridan, which was rejected by 244 against eighty-six, when the original motion for a committee was carried without a division. On the 6th of March the lords' committee reported to the house that it was necessary to 'continue and confirm the measures already taken, for such time, and under such limitations and restrictions, and with such power of discontinuing the same, as to the wisdom of parliament might seem expedient.' And thus a system of paper money, without reference to any standard, either of value or quantity, was established, the duration and progress of which will appear, as the elucidation of the transactions of the bank is here further proceeded in.

54. On the re-assembling of parliament in November of the same year (1797), the committee of secresy, appointed to enquire into the expediency of continuing the restriction on the bank, reported, that the total assets of the bank, exclusive of the £11,686,800 of permanent debt due from the government on the 11th of November, was £21,418,640 (see sect. 48 for the amount on the 25th February preceding), and that the total amount of outstanding demands was £17,578,910, leaving a balance on that date in favor of the bank of £3,839,730. The report further stated that the advances of government had been reduced to £4,258,140, and that the cash and bullion in the bank had increased to nearly £6,500,000 or upwards, or five times its amount on the February preceding; all this being true, it will be seen that the discounts of commercial bills must have been increased in the proportion of about £8,000,000 against £2,905,000, the amount in February, but it will seem, on reflection, and on comparison with the advances to the government, as exhibited in the appendix at the conclusion of this article, that the whole report was a singular misrepresentation of the facts of the case, to answer the purposes of the moment; at all events, it will be seen that both the temporary advances to the government, and issue of notes, progressively increased from the close of the year 1797 up to the peace of Amiens in 1802-3, and the following statement exhibits the progress and duration of that restriction, which the Lord Chancellor in the Lords, and the finance minister in the Commons, so solemnly declared was to be only temporary.

55. The first act passed, relating to the subject was dated the 3d March, 1797, 37 Geo. III, cap. 28, authorising the issuing of notes for £1 and £2 each; the amount of such notes in circulation on the 26th August of that year was £934,015; for the progressive increase of their circulation see appendix.

ACTS RELATING TO RESTRICTION.

Year of Reign.	Date of Act.	Purport and Duration.
37 Geo. III. cap. 45.	3d May, 1797.	Indemnity for order in council, and to continue during the following month of June.
— — — 91.	22d June, ——	Extended to one month after the meeting of the next session of parliament.
38 — — 1.	30th Nov. ——	Further extended to one month after the ratification of a definitive treaty of peace, which took place on the 25th March, 1802.
42 — — 40.	30th April, 1802.	Further extended to 1st March, 1803.
43 — — 18.	28th Feb. 1803.	Still further, to six weeks after the meeting of the next session of parliament.
44 — — 1.	15th Dec. ——	Again, to six months after the ratification of a definitive treaty of peace.

This brings the history of the restriction down to a most interesting and important period of its operation; so far, it is important to understand, that notwithstanding the introduction of paper as a circulating medium, gold at the rate of 77s. 10½d. per ounce continued to be the legal standard of value, and such was the incongruity of British legislation at this period, that whilst landlords and other creditors were authorised by law to enforce payment in gold, the acts previously enumerated precluded the gold from being had, wherewith either to pay rents, or make any other payments; such however was the insidious working of the system, that up to the period of 1809 no derangement in the social economy of the state, resulting from such incongruity of legislation was perceptible.

56. In 1800 foreign gold coin commanded about 5s. to 7s. per ounce more than its equivalent value to British coin; but the short peace of 1801-2 occasioned a cessation of demand, and the price again became merely nominal. From March, 1804, to October, 1805, standard gold sold at £4 per ounce; and from October, 1805, to February, 1809, no price was quoted; in the meantime, however, all the gold coin of the realm had gradually disappeared (for the quantity coined in each year since the restoration of Charles II. in 1663, see Statistical Illustrations, folio 47, and the article MINT in a subsequent part of this work), partly for internal purposes of manufacture and ornament, and partly in aid of the external purposes of the war; not directly and openly for that purpose, but the excess of

bills drawn by the commissariat and other agents of the government, on account of the expenses of the war in different parts of the world, occasioned the bills to be drawn at a discount of 10 to 15 or 20 per cent. and at such depreciation, instead of being left to operate as mere extraneous equivalents of commercial exchange, they became an object of speculation against bullion, in reference to the standard price of gold in England.

57. To render the circumstances of this very interesting and important period of the bank restriction act somewhat more intelligible to such readers as are not practically familiar with the complicated involutions of exchanges, it may not be irrelevant to state (taking the mint of France as the means of illustration), that according to the mint regulations of England and France, twenty-five francs, twenty centimes in France are equal to £1 in England; but, in consequence of the excess of bills above adverted to, in May, 1809, the £1 English in France would not obtain more than twenty francs; consequently, as long as gold could be obtained in England at the mint price of 77s. 10½d. per ounce, it yielded a profit in France of upwards of 20 per cent. against that rate of exchange, but such a disparity of value, as might naturally be expected, excited a spirit of speculation and competition, which raised the price of gold to a premium equal to the discount on the bills. So that in May, 1809, gold commanded £4. 11s. per ounce; this disparity between the mint and trading price of gold excited an universal hubbub in every part of the country, and in February, 1810, a committee of parliament was appointed to enquire into the cause of the high price of bullion, and to take into consideration the state of the circulating medium, and of the exchanges between Great Britain and foreign parts. This committee sat from the 22d of February to the 25th of May, during which time it took the opinions of thirty different persons, whose trading transactions and influence were thought to be such as qualified them to throw much light on the subject; but whether ignorant of the combination of causes that did in reality produce the disparity of value, or whether selfish motives led them to conceal their better judgment, certain it is, that although much interesting matter-of-fact information is here and there interspersed through different parts of the evidence, as a whole, it is completely destitute of every thing like a solution to the question proposed. In proof of this conclusion see article EXCHANGE, in a subsequent part of this work; and in proof of the futility of the labors of the committee, and of the frivolousness of the evidence in a general sense, bullion continued gradually to advance, and the exchanges progressively to depreciate, until on the 18th September, 1812, gold commanded £5. 11s. per ounce.

58. Such an extreme disparity of value had previously excited every species of contrivance to collect gold, and was beginning to lead to such general derangements in the internal economy of the state, in selfish and avaricious individuals availing themselves of the point of law, which authorised them to demand and enforce payment in gold, in cases where by the nature of the obligation, payment in current money only was implied, that on the 24th July, 1811, an act was passed, 51 Geo. III. cap. 127, to make the bank of England notes a legal tender in all payments, which by the act of the 38 Geo. III. cap. 1. (30th Nov. 1797), were only so in private transactions, after having been accepted as such, but which were ordered to be received as cash by all the collectors of taxes and duties. The title of the act for making the bank of England notes a legal tender, in conjunction with a consideration of the circumstances which led to it, is curious, and deserves attention. It is as follows, viz. 'For making a more effectual provision for preventing the current gold coin of the realm from being paid or accepted for a greater value than the current value of such coin; and for preventing any note or bill of the governor and company of the bank of England from being received for any smaller sum than the sum therein specified; and for staying proceedings upon any distress by tender of such notes.' To continue in force till the 25th of March, 1812, and no longer.

59. By another act in the following session, 52 Geo. III. cap. 50. dated 5th May, 1812, the preceding act was extended to three months after the commencement of the next session of parliament, and no longer; and by 53 Geo. III. cap. 5, 22d Dec. 1812, further extended to 25th March, 1814; and by 54 Geo. III. cap. 52, 4th May, 1814, to as long as restriction continues; 54 Geo. III. cap. 19, 18th July, 1814, restriction extended to 25th March, 1815; 55 Geo. III. cap. 28, 23d March, 1815, further extended to 5th of July, 1816; 56 Geo. III. cap. 40, 21st May, 1816, still further to 5th of July, 1818; 58 Geo. III. cap. 37, 28th May, 1818, again to 5th of July, 1819; 59 Geo. III. cap. 23, 6th April, 1819, restriction extended indefinitely; 59 Geo. III. cap. 49, 2d July, 1819, restriction limited to 1st of May, 1823; and in the interim the bank empowered to exchange bullion in quantities of not less than sixty ounces for their notes, between the 1st of February and 1st of October, 1820, at any rate between 81s. and 79s. 6d. per ounce; and from the 1st of October, 1820, to the 1st of May, 1821, at any rate between 79s. 6d. and 77s. 10½d. per ounce; and from the 1st of May, 1821, to 1st of May, 1823, at 77s. 10½d. per ounce; when gold coin again became a general circulating medium, and, as will be seen by the statement at the conclusion of this article, the £1 and £2 notes of the bank of England were withdrawn from circulation, and to meet this change in the circulating medium in the years 1821 and 1822, gold to the amount of £14,877,547 was coined at the mint. Such is the history of the bank restriction act, which in February, 1797, was in both houses of parliament so solemnly declared to be only a temporary measure, but which continued through a period of twenty-six years.

60 Preparatory to returning again to a gold circulating medium, a committee was appointed in each house of parliament, in 1819, to enquire into the state and affairs of the bank, with reference to the expediency of the resumption of cash payments, when, after taking the opinion of about thirty persons, the act of 2d July, 1819, 59 Geo.

III. cap. 49. was resolved upon, and in the course of the enquiry on the 31st of March, 1819, the bank exhibited the following account of the state of their affairs, viz. 'That the whole of the claims upon them on that date amounted to £33,948,560, of which £24,710,770 was notes in circulation, and £9,237,790 in deposits and other debts, against which their assets in cash and bullion, bills discounted, and government securities, amounted to £39,179,750, leaving a balance in favor of the bank to the amount of £5,231,190, exclusive of the £11,686,800, permanent debt of the government, as exhibited in sect. 41, and £3,000,000 added in 1816.' Flattering as all this may seem on a superficial view of the subject, and confident as opinion generally was, of the country having escaped the peril, so earnestly warned of by Lord Lansdowne, in sect. 51, a short period only elapsed before the effects of the system, spectre-like, returned in a more terrific form than ever. Preparatory to the return to cash payments in 1823, through the years 1821 and 1822, the bank had progressively diminished the issue of its notes from an average of £22,550,000 in December, 1820, to an average of £16,393,000 in December, 1822; a depression in the money value of all the products of industry, without any parallel since the commencement of the war in 1793, followed this diminution of circulating medium. But the ordeal of the experiment of paying gold on demand having been got over, the cupidity of avarice again began to operate, and notwithstanding the accession to the circulating medium of the £14,877,547 of gold coined in the years 1821 and 1822, the bank again showed a disposition to force its notes into circulation, so far, that instead of gold supplying the place of paper for six weeks preceding the 5th of January, 1825, the bank of England notes in circulation again exceeded an average of £20,000,000; and those of country bankers had increased from £4,293,164 in 1822, to £6,724,069 in 1824, and £8,755,307 in 1825.

61. The facility of raising money among individuals, which this redundancy of circulating medium afforded, gave rise to an extent of speculation, far, very far, exceeding the notable South Sea and other adventures at the commencement of the preceding century. (See the article COMPANY, in a subsequent part of this work, for an elucidation of the extent and consequences of the folly at both periods.) Towards the month of September, however, the speculations generally began to be considered equivocal in their results; the first perceptible shock to what is technically termed credit, was experienced on the 24th of October, in the suspension of payment of one of the most eminent commercial establishments in London, or the commercial world (Mr. S. Williams, an American). After this, a month passed away in gloomy suspense, till on the 25th of November an extensive banking establishment at Plymouth (Sir W. Elford, Bart. and Co.) was the next evidence of the unsoundness and impolicy of the paper money system. This failure strengthened the doubts of the stability of others, and suspicion falling on all the banking establishments in the west of England, it produced in London such a demand for gold, as excited apprehensions for the consequences to which it might lead; in the meantime the bank of England had been progressively narrowing its issues, till the amount at the end of November was reduced again to £17,500,000. On the 9th of December the suspension of payment was announced of an extensive banking establishment at York (Messrs. Wentworth, Chaloner and Co.), having branches at three or four other towns in the county, and their own house of agency in London; consternation now became general, and the directors of the bank of England, who had, as we contend, contributed to bring on the derangement, by the facility which they afforded to get their notes into circulation, in discounting three and four months bills at 4 per cent. per annum, now as suddenly took steps which accelerated the derangement. On the 13th of December the following notice was issued, viz.:—

Bank of England.

'Resolved—That from and after the 13th instant, no bills or notes will be discounted under 5 per cent. per annum.'

62. This notification added considerably to the consternation: an extensive private banking establishment, deemed one of the most reputable in London, had previously suspended its payments, and on the following morning two others were reduced to the same alternative; it would be difficult, and at all events it would exceed due limits here, to describe the dismay and confusion that now prevailed; and with the view of endeavouring to allay the ferment, a public meeting at the Mansion House, as on the memorable 27th of February, 1797, took place on the 13th of December, 1825, when about 700 signatures were obtained to the following resolutions: viz.

'1. That the unprecedented embarrassments and difficulties under which the circulation of the country at present labors are mainly to be attributed to a general panic, for which there are no reasonable grounds; that this meeting has the fullest confidence in the means and substance of the banking establishments of the capital and the country, and they believe that the acting generally upon that confidence would relieve all those symptoms of distress which now show themselves in a shape so alarming to the timid, and so fatal to those who are forced to sacrifice their property to meet sudden demands upon them, which it is no imputation upon their judgment and prudence not to have expected.

'2. That it having been stated to this meeting, that the directors of the bank of England are occupied with the remedy for a state of things so extraordinary, this meeting will refrain from any interference with the measures of the directors of the bank, who, they are satisfied, will do their duty towards the public.

'3. That having the firmest confidence in the stability of the public credit of the country, we declare our determination to support it to the utmost of our power.

'4. That it is the opinion of the meeting that declarations of a similar description with the

present, in the country towns, where the banking establishments may appear to deserve them, may be productive of much benefit in restoring general confidence.'

63. Although it was generally believed that the bank of England had been drained of nearly the whole of its stock of gold, during the memorable week between the 10th and 18th of December; yet on an average of the five weeks between the latter date and the 22d of January, 1826, the issue of bank of England notes had been increased to £25,310,000.; and that this lavish experimental issue did not lead to the necessity of again resorting to a restriction Act, was owing entirely to circumstances not at all contemplated in the deliberations which led to the increased issue of notes, and which, in fact, seem to have been issued with very little calculation on the consequences to which they might lead.

64. Notwithstanding the declaration at the Mansion House, on the 13th of December, that the embarrassments and difficulties under which the circulation of the country then labored, were mainly to be attributed to a general panic, for which there were no reasonable grounds; according to a return laid before the House of Commons on the 27th of February, 1826; in the interval of the end of October, 1825, and that date, fifty-nine banking establishments, comprising 144 partners, had been declared bankrupt, about twenty others insolvent, and every succeeding week continued to add from seventy to 100 merchants, manufacturers, and traders, to the bankrupt list, and thousands to the lists of insolvency; whilst half a million of families in the several manufacturing districts were driven to the verge of starvation, in consequence of the destruction of confidence, and suspension of commercial operations, which the uncertain issue and uncertain value of the circulating medium in great part occasioned.

65. Having now brought the history of the bank of England from the time of its foundation down to the period of this sheet going to press, in May, 1826, in reference to its circulation, we will now proceed to bring down its history from sect. 44, in reference to its agency and connexion with the government. Sect. 34 shows that it originated in the raising of a loan of £1,200,000 for the use of the government, at an interest of 8 per cent. per annum, and £4000 per annum for agency; and that that transaction was, in fact, the foundation of the funding system, which has led to an extent and pressure of taxation without any parallel in the history of society, and which the bank of England has been the main instrument in occasioning. Sect. 42 shows the progress of the advances made by the bank to the government up to 1781; which advances, in addition to the interest, were all subject to a charge for agency; as was also all other sums raised by lottery, or borrowed by the government from individuals during the war, from 1702 to 1713, the total sum then amounting to £52,145,363. The terms of agency up to 1726 had varied according to circumstances, at which time it was fixed at £360 per million, afterwards increased to £562. 10*s*. per million; after the peace of Versailles in 1782, when the total sum amounted to £249,000,000, the terms were reduced to £450 per million, at which rate it continued up to 1807, when it was reduced to £340 per million, on £600,000,000., and £300 for every million above that sum; during the exaction of the property tax, the bank received at the rate of £1250 per million, on such portions of the tax as were paid in to the bank direct, and £805. 15*s*. 10*d*. per million on about £600,000,000 paid in on account of loans between the 1st of February, 1793, and the 5th of January, 1823; these several charges (including £4000 to £6000 per annum for management of lotteries), and most of which charges are likely to continue, at all events up to the period of the continuance of the charter in 1833, since the commencement of the present century, have averaged about £275,000 per annum.

66. Independently of the above species of agency, subject to specific charges, the whole receipt of taxes of Great Britain passes through the Bank of England, which, since 1803, have averaged upwards of £50,000,000 per annum; upon this branch of its agency the bank makes no direct charge, but as each separate department, paymaster, or accountant of the government, upwards of fifty in number, has its separate account at the bank, and each holding a provision for the progress of its payments, it leaves a permanent balance in the hands of the bank of from four to seven millions per annum, and during several of the last years of the war from ten to fifteen millions per annum. The following is a statement of the amount in each of the eight years 1818—1825 according to returns made annually to parliament, viz.

Years.	Maximum.	Minimum.	Average of the Year.
1818	8,852,078	5,709,487	7,019,071
1820	5,861,631	2,246,598	3,713,442
1	7,096,874	2,302,591	3,920,157
2	7,690,046	2,867,851	4,107,853
3	8,305,174	3,698,764	5,526,635
4	10,359,773	5,000,127	7,222,187
5	9,239,024	3,197,190	5,347,314

67. By means of these balances, deposits of individuals, and the circulation of its notes (and the circulation of its notes, be it remembered, creates the means of the balances and deposits), the bank discounts the bills of individuals, makes the temporary advances to government on interest, and buys exchequer bills and other government securities, bearing interest; all these it is, in addition to the specific charge of £275,000 per annum specified in sect. 65. and 3 per cent. on the £14,686,800 specified in sect. 41, that enables the directors of the bank to divide the enormous amount of £1,455,300 per annum among the holders of the £14,553,000 of stock, as specified in sect.43. This profuse dividend occasions the nominal £100 of stock on the bank books, to be saleable for transfer proportionate to the current rate of interest, be it 3, 4, or 5 per cent. per annum. Hence, on the

10th of May, 1816, £100 of stock commanded £262, and this leads us to an elucidation of the transaction adverted to in sect. 42. In 1816 the directors of the bank offered to lend the government a further sum of £3,000,000 during the continuance of their charter, at the moderate rate of interest of 3 per cent. per annum, the current rate then being about £4. 5s. per cent.; and such was the blindness, as the writer of this paper regards it, of the government at that time, that the Chancellor of the Exchequer actually held it up in parliament as one of the most disinterested acts of kindness and generosity of a public body that he had ever known: but the reader should mark the sequel.

68. There was another proposition connected with the transaction on the part of the directors of the bank, to the following purport, viz. That they should be empowered to add 25 per cent. to their then permanent capital of £11,453,330. This being complied with, what did the transaction amount to? Certainly to empower the then holders of bank stock to levy a contribution of from £7,000,000 to £8,000,000 on the public for their own exclusive benefit, because no new subscription was called for, nor was the £3,000,000 purported to be lent, the property of the bank, but simply a reduction of the balances of the public money, which the bank held as the agent of the public; which by this act they were empowered to convert either into a marketable commodity at from £262 to £220 for every £100, or to retain it as a permanent accession of capital equivalent thereto.

69. Another transaction between the bank and the government, equally disadvantageous to the public, took place in 1823, act of 4 Geo. IV. cap. 22. This act, which, under the title of Military and Naval Pension Bill, was virtually an act to raise money for the purpose of sustaining the sinking fund, granted an annuity to the bank of £585,740 for forty-four years, from the 5th of April, 1823, in consideration of the bank paying to the government the sum of £13,089,419 in thirteen irregular instalments between the 5th of April, 1823, and the 5th of July, 1828. As the actual result of this transaction depends upon the rate or terms at which the £13,089,419 or a corresponding sum, may be expended in the purchase of 3 per cent. stock, prior to the payment of the last instalment, we are of course (in May, 1826) precluded from stating with accuracy the precise extent of its disadvantage to the public. But, according to one (the eighteenth) of a series of resolutions on the state of the nation, submitted to the consideration of parliament, by Mr. Hume, on the 4th of May, 1826, it appears that £6,917,569 of the amount received up to the 6th of January, 1826, had been expended at a rate equivalent to £7,858,188 of 3 per cent. stock, whilst the equivalent of 3 per cent. stock given for that portion of the amount was £9,476,110, consequently a bonus to the bank equal to £1,617,922 of 3 per cent. stock; but, by mathematically correct working of the transaction in 1824, when the 3 per cent. stock was at 95, and assuming that rate for the expenditure of the remainder of the instalments then to be paid, the result would have been on the 10th of October, 1828, a cancelling of perpetual annuity to the amount of £365,880, leaving an excess of £219,852 per annum, payable for 38½ years, equivalent to an annuity in perpetuity of £146,962; and supposing from the date of the last instalment in 1828, 3 per cent. stock should recede to 60, or the rate of interest become permanent at 5 per cent. per annum, the excess of the annuity of £219,852 for 38½ years, would, at the expiration of that period, be equal to £29,381,900 of 3 per cent. stock, or an annuity in perpetuity of £881,457, consequently a disadvantage to the public to that extent for ever.

). The following is a Statement of the Income of the Bank at the period of this article going to press.

Interest on the £14,686,800 permanent Debt of the Government, at 3 per cent.		£440,604
Annuity for 44 years, from 5th of April, 1823		585,740
Charge for transfer of the Public Funds, and Payment of the Annuities, about		275,000
Interest on Notes in circulation, say £20,000,000, at an average of 4 per cent.		800,000
Total		£2,101,344
From which the following charges and liabilities must be deducted, viz.		
Salaries of about 1000 Clerks	£250,000	
Stationary, Coals, Candles, and House Expenses	50,000	
Repair of Buildings, Taxes, &c.	20,000	
Composition for Stamps	50,000	
Loss on Bills Discounted	50,000	
Law Expenses, Gratuities, &c.	20,000	
		440,000
Net Income		£1,661,344

Being upwards of 11 per cent. on the amount of stock constituting the permanent capital annually divided upon, against which, however, £5,000,000 of the loan of 1823, for which the annuity of £585,740 was obtained, remains to be paid up; but, if the resources of the bank have hitherto been such as to enable it to advance the £8,000,000 without entrenching more than 2 per cent upon its profuse income, but little doubt remains that it will be able to fulfil the contract without any further entrenchment, and if so, the whole annuity then remains clear income for the remainder of the period, viz. 38½ years. The amounts deducted from the gross income are entirely assumed, there being no authentic data before the public on the subject, they probably exceed the actual expenses.

71. In the preceding view of the total income of the bank, no notice is taken of interest on the temporary advances to the government, nor of profits by discounting, nor of interest that may be derived from the balances held by the bank, due as well to depositors as to the government; because the first, that is, the temporary advances to the government wholly, and the others partially, merge in the aggregate amount of interest derived from the circulation of its notes.

72. In addition to the Bank of England there are about seventy private banking establishments in London, for the purposes of deposit, transfer, and discount only; and about 700 others, spread over the several counties of England and Wales, and thirty-two in Scotland; the greater portion of which circulate their own notes, in addition to acting as banks of discount, deposit, and transfer. But as, at the period of this article going to press, proceedings are pending in parliament which threaten a change in the banking system, calculated to change these arrangements entirely, we refer the reader to the article CIRCULATING MEDIUM, in a subsequent part of this work, for a continuation of the history and practice of banking in England, Scotland, and Ireland, as well as in France, America, British India, New South Wales, and the Cape of Good Hope. See also SAVINGS BANK, under the head SAVINGS.

73. STATEMENT.

Years.	Bank Notes and Bank Post Bills in circulation on the 25th or 26th February.				Total on the 25th or 26th of August.	Amount of Debt due to Bank from Government.	
	Bank Notes of £5 and upwards.	Bank Post Bills.	£1 and £2 Notes first issued by act of 37 Geo. III. c. 28 dated 3d March, 1797.	Total.		On 25th or 26th of February.	On 25th or 26th of August.
1792	10,394,106	755,703		11,149,809	11,006,969	10,968,306	11,684,484
3	10,780,643	647,738		11,428,381	10,838,214	10,529,828	11,851,388
4	10,079,165	618,759		10,697,924	10,628,220	10,816,867	8,737,806
5	12,968,707	570,456		13,539,163	11,458,382	13,118,013	13,460,144
6	10,266,561	643,133		10,909,694	9,531,335	12,717,239	10,454,614
7	8,167,949	474,615		8,601,964	10,568,216	10,181,862	7,145,134
8	10,856,188	551,549	1,442,348	12,850,085	12,191,025	9,807,814	9,444,976
9	10,576,510	607,907	1,451,728	12,636,145	13,259,873	10,082,739	8,986,439
1800	13,106,368	723,600	1,406,708	15,236,676	14,735,378	13,201,639	12,899,239
1	12,975,006	954,982	2,647,526	16,577,514	14,970,321	15,289,439	11,948,539
2	12,038,970	803,499	2,616,407	15,458,876	16,887,113	14,284,239	13,552,339
3	11,796,424	820,039	2,960,469	15,576,932	17,035,959	9,595,939	13,635,239
4	12,054,943	848,894	4,673,515	17,577,352	17,323,994	11,715,239	15,304,439
5	11,403,290	1,029,580	4,801,596	17,234,466	16,296,178	17,202,739	11,745,339
6	11,994,350	725,736	4,428,360	17,148,446	19,072,893	14,663,339	14,445,339
7	12,274,629	724,485	4,206,230	17,205,344	20,034,112	13,763,539	13,665,339
8	13,746,598	742,671	4,103,785	18,593,054	17,365,266	14,364,939	15,677,539
9	12,730,999	944,727	4,338,951	18,014,677	19,357,241	15,400,139	16,609,339
1810	13,650,592	907,620	5,871,069	20,429,281	24,446,175	15,017,839	17,689,739
11	15,110,688	1,133,419	7,140,726	23,384,833	23,793,115	18,068,439	22,696,239
12	14,523,049	1,059,854	7,415,294	22,998,197	23,482,910	22,551,739	21,957,639
13	14,567,267	1,034,882	7,705,322	23,307,471	24,024,869	25,893,039	25,731,234
14	15,632,250	1,091,242	8,371,923	25,095,415	28,979,876	24,484,039	25,814,539
15	16,394,359	1,184,459	9,094,552	26,673,370	27,024,049	28,032,739	24,955,839
16	15,307,228	1,336,467	9,036,374	25,680,069	27,075,854	19,865,039	27,222,845
17	17,533,656	1,576,416	8,143,506	27,058,578	30,099,908	26,373,570	28,300,209
18	19,077,951	1,838,600	7,362,492	28,279,043	26,602,837	28,035,523	28,087,860
19	16,549,270	1,602,390	7,276,590	25,947,637	25,657,610	23,727,720	25,546,230
1820	15,393,770	1,401,200	6,689,130	23,484,100	24,533,160	23,005,204	20,826,447
21	15,766,270	1,606,820	6,451,520	23,824,610	20,327,753	16,641,620	17,214,325
22	15,178,490	1,609,620	1,384,360	18,172,470	18,142,700	14,188,200	15,450,958
23	15,749,980	1,747,160	692,110	18,189,450	19,582,348	14,969,554	15,319,316
24	17,469,210	2,246,040	491,370	19,736,986	20,293,326	15,600,780	15,884,458
25				21,060,145	19,290,570	19,679,288	18,961,168
26			1,559,756	23,673,737		18,724,246	

BANKAFALET, a game of cards played thus: after cutting the cards into as many parts as there are players, every man lays what money he chooses on his card; and according to the value of his card, above or below those of the other gamesters, the dealer wins or loses. The ace of diamonds is the best card; the ace of hearts next; the ace of clubs after it; then the ace of spades; and so of the rest of these suits in order, according to their rank. The cheat depends on securing an ace, or such other sure winning card; which are known to the sharper by some secret mark.

BANKERS, in antiquity, were called argentarii, and nummularii; by the Greeks τραπεζιται, κολλυβισται, and αργυραμοιβοι. Their chief business was to put out the money of private persons to interest: they had their boards and benches for this purpose in all the markets and public places, where they took in the money from some, to lend it to others. The Romans had two kinds of bankers, though their office was much more extensive than that of the bankers among us, theirs being that of public officers, in whom were united the functions of a broker, agent, banker, and notary; managing the exchange, taking in money, assisting in buying and selling, and drawing the writings necessary on all these occasions.

BANKERS, in bricklaying, pieces of timber whereon bricks are cut. The banker is six feet long or more, according to the number of men to work at it, and nine or ten inches square; it is to be laid on two piers of timber, three feet high from the floor.

BANKERS, in the court of Rome, are persons authorised, exclusively, to solicit and procure by their correspondents at Rome, all bulls, dispensations, and other acts despatched at the papal datary, or in the legateship of Avignon. They were common in all the cities of France that had a parliament, or a presidial before the revolution; and were erected into a regular and hereditary office, by an edict in 1673. They owed their origin to the Guelphs, who took shelter at Avignon, and in other cities within the jurisdiction of the pope, in the time of the civil wars of Italy. But the heavy extortions they practised towards their clients, soon rendered them odious, and occasioned several denominations of reproach, as barcini, caturcini, caursini, corcini, &c. from the city Cahors, the native place of pope John XXII. in whose pontificate they were in their highest power.

BANKERS, in seamens' language, vessels employed in the cod-fishery on the banks of Newfoundland.

BANKING, in architecture, the making of banks to oppose the force of the sea, rivers, or the like, and secure the land from being overflowed thereby. With respect to the water which is to be kept out, this is called banking; with respect to the land, which is thereby to be defended, embanking.

BANKALA, an island in the eastern seas, off the coast of Celebes, about twenty miles in circumference. Long. 122° 51′ E., lat. 2° 30′ S.

BANKAPOUR, or BANCAPOUR, a fortress of Indostan, in the Mysore, now dismantled. Distant 108 miles N. W. of Seringapatam, and sixty S. W. of Bednore.

BANKINSKOI, a town of Siberia, in the environs of Lake Baikal. Long. 117° 14′ E., lat. 51° 11′ N.

BANKMORE, a sand bank in the Irish Sea, one mile south of Pontaferry harbour, in the county of Down.

BANKODANG, a small island in the Eastern Indian sea. Long. 118° 2′ E., lat. 5° 12′ S.

BANKOSSEI, a town of Lower Siam, on the west side of the gulf. Distant seventy miles south of Juthia. Long. 100° 38′ E., lat. 13° 12′ N.

BANKRUPTS, LAWS RESPECTING. The title of the first English statute on this subject, 34 Henry VIII. cap. 4, which is said to be 'against such persons as do make bankrupt,' is a literal translation of the French idiom, qui font banque route. The 3d of Elizabeth followed, all of the provisions of which were incorporated in 1 Jac. I.

A bankrupt, according to these statutes, was considered as a criminal or offender, 1. Jac. I. c. 15. sect. 17; but at present the laws of bankruptcy are regarded as calculated for the general benefit of trade, and being founded on broader views of humanity and justice, confer some privileges not only on the creditors, but also on the bankrupt himself: on the creditors, by compelling the bankrupt to give up all his effects to their use, without any concealment;—and on the debtor, by exempting him from the rigor of other parts of the law, whereby his person might be confined at the discretion of his creditor, though in reality he has nothing to satisfy the debt; and, together with the liberty of his person, affording him, on certain conditions, some pecuniary provision for his future maintenance. In this respect our legislatures seems to have attended to the example of the Roman law. We mean not the terrible law of the XII tables; whereby creditors might cut the debtor's body into pieces, and each of them take his proportionable share: if indeed that law, de debitore in partes secando, is to be understood in so barbarous a light; nor do we mean those less inhuman laws (if they may be called so, as their meaning is indisputably certain), of imprisoning the debtor's person in chains, subjecting him to stripes and hard labor at the mercy of his creditor; and sometimes selling him, his wife, and children, to perpetual foreign slavery trans Tiberim; an oppressionwhich produced so many popular insurrections, and secessions to the mons sacer. Laws equally barbarous are quoted by Blackstone, as existing in Pegu, and the adjacent countries of the East, where the creditor is entitled to dispose of the debtor himself, and likewise of, or appropriate, his wife and children: though indeed by doing so, the debt is understood to be discharged. But we mean the law of cession introduced by the Christian emperors; whereby, if a debtor ceded or yielded up all his fortune to his creditors, he was secured from imprisonment, 'omni quoque corporali cruciatu semoto.' For, as the emperor justly observes, 'inhumanum erat spoliatum fortunis suis in solidum damnari.' Thus far was just and reasonable; but, as the departing from one extreme is apt to produce its opposite, we find it afterwards enacted, that if the

debtor, by any unforeseen accident, was reduced to low circumstances, and would swear that he had not sufficient left to pay his debts, he should not be compelled to cede or give up even that which he had in his possession; a law which, under a false notion of humanity, seems to be fertile of perjury, absurdity, and injustice. The laws of England, more wisely, have steered between these extremes: providing at once against the inhumanity of the creditor, who is not suffered to confine an honest bankrupt after his effects are delivered up; and at the same time taking care that all his just debts shall be paid, so far as the effects will extend. But still they are cautious of encouraging prodigality and extravagance by this indulgence to debtors: and therefore they allow the benefit of the laws of bankruptcy to none but actual traders; since that set of men are, generally speaking, the only persons liable to accidental losses, and to an inability of paying their debts, without any fault of their own. If persons in other situations of life run in debt without the power of payment, they must take the consequences of their own indiscretion, even though they meet with sudden accidents that may reduce their fortunes; for the law holds it to be an unjustifiable practice, for any person but a trader to encumber himself with debts of any considerable value. If a gentleman, or one in a liberal profession, at the time of contracting his debts, has a sufficient fund to pay them, the delay of payment is a species of dishonesty, and a temporary injustice to his creditor; and if, at such a time, he has not sufficient fund, the dishonesty and injustice is the greater. He cannot, therefore, murmur, if he suffer the punishment which he has voluntarily drawn upon himself. But in mercantile transactions, the case is far otherwise. Trade cannot be carried on without mutual credit on both sides; the contracting of debts is therefore here not only justifiable but necessary. And if by accidental calamities, as by the loss of a ship in a tempest, the failure of brother traders, or by the non-payment of persons out of trade, a merchant or trader becomes incapable of discharging his own debts, it is his misfortune and not his fault. Such is the spirit of our law: which has been rendered more simple in the mode of its execution of late by the comprehensive statute 6 Geo. IV. cap. 16. which, repealing the greater part of the former statutes on this subject, dictates a line of practice which may be conveniently considered under, 1. Who may become bankrupts. 2. What is an act of bankruptcy. 3. Proceedings thereon up to, and inclusive of the meetings of creditors. 4. Effects to the bankrupt and his creditors.

I. *Persons who may become bankrupts* are defined to be, all bankers, brokers, and persons using the trade or profession of a scrivener, receiving other men's monies or estates into their trust or custody, and persons insuring ships or their freight, or other matters, against perils of the sea, warehousemen, wharfingers, packers, builders, carpenters, shipwrights, victuallers, keepers of inns, taverns, hotels, or coffee-houses, dyers, printers, bleachers, fullers, calenderers, cattle or sheep salesmen, and all persons using the trade of merchandise by way of bargaining, exchange, bartering, commission, consignment, or otherwise, in gross or by retail; and all persons who, either for themselves or as agents or factors for others, seek their living by buying and selling, or by buying and letting for hire, or by the workmanship of goods or commodities, shall be deemed traders liable to become bankrupt: Provided that no farmer, grazier, common laborer, or workman for hire, receiver-general of the taxes, or member of or subscriber to any incorporated commercial or trading companies, established by charter or act of parliament, shall be deemed, as such a trader, liable to become bankrupt.

II. *An act of bankruptcy* is committed. 1. 'If any trader shall depart this realm, or being out of this realm shall remain abroad, or depart from his dwelling-house, or otherwise absent himself, or begin to keep his house, or suffer himself to be arrested for any debt not due, or yield himself to prison, or suffer himself to be outlawed, or procure himself to be arrested, or his goods, money, or chattels, to be attached, sequestered, or taken in execution, or make or cause to be made, either within this realm or elsewhere, any fraudulent grant or conveyance of any of his lands, tenements, goods, or chattels, or make or cause to be made any fraudulent surrender of any of his copyhold lands or tenements, or make or cause to be made any fraudulent gift, delivery, or transfer of any of his goods, or chattels; every such trader doing, suffering, procuring, executing, permitting, making, or causing to be made any of the acts, deeds, or matters aforesaid, with intent to defeat or delay his creditors, shall be deemed to have thereby committed an act of bankruptcy.

2. But where any trader shall execute any conveyance or assignment, by deed, to a trustee or trustees, of all his estate and effects for the benefit of all the creditors of such trader, the execution of such deed shall not be deemed an act of bankruptcy, unless a commission issue against such trader within six calender months from the execution thereof, provided that such deed shall be executed by every such trustee within fifteen days after the execution thereof by the said trader; and that the execution by such trader and by every such trustee be attested by an attorney or solicitor; and that notice be given within two months after the execution thereof by such trader in the London Gazette, and two London daily newspapers; or in case the trader does not reside within forty miles of London, in the London Gazette and in one London daily newspaper and one provincial newspaper, published near to such trader's residence; such notice containing the date and execution of such deed, and the name and place of abode respectively of every such trustee, and of such attorney or solicitor.

3. Other acts of bankruptcy are lying in prison for debt twenty-one days; escaping out of prison or custody; or, which is the most novel and important feature of this act,—If any trader shall file in the office of the Lord Chancellor's secretary of bankrupts, a declaration in writing, signed by an attorney or solicitor, that he is unable to meet his engagements, the bankrupts or his deputy

randum that such declaration hath been filed, which is authority for the printer of the London Gazette to insert an advertisement of such declaration therein; and every such declaration shall, after the advertisement inserted, become an act of bankruptcy committed by such trader at the time when such declaration was filed: but no commission can issue thereupon, unless it be sued out within two calender months next after its insertion, nor unless such advertisement shall have been inserted in the London Gazette within eight days after such declaration was filed; and no docket can be struck upon such act of bankruptcy before the expiration of four days next after insertion of such advertisement, in case such commission is to be executed in London, or before the expiration of eight days next after such insertion, in case such commission is to be executed in the country.

A further provision upon this point, and which seems designed to encourage a settlement of insolvents' affairs in this way is, That no commission under which the adjudication shall be grounded on the act of bankruptcy being the filing of such declaration, shall be deemed invalid by reason of such declaration having been concerted or agreed upon between the bankrupt and any creditor or other person.

If any trader having privilege of parliament shall commit any act of bankruptcy, a commission of bankrupt may issue against him, and the commissioners and all other persons acting under such commission, may proceed thereon in like manner as against other bankrupts, only such person shall not be subject to be arrested or imprisoned during his privilege, except in cases made felony by this act.

III. *Proceedings hereupon.* 1. The Lord Chancellor has power upon petition stating to him in writing that any trader has committed any act of bankruptcy, by any creditor or creditors of such trader; if one being a creditor for £100, if two for £150, and if three being creditors for £200; by commission under the great seal, to appoint such persons as to him shall seem fit, to have full power and authority to take such order and direction, with the body of the bankrupt, as herein after mentioned, as also with all his lands, tenements, and hereditaments, both within the realm and abroad, which he shall have in his own right before he became bankrupt, as also with all such interest in any such lands, tenements, and hereditaments as such bankrupt may lawfully depart with all, and with all his money, fees, offices, annuities, goods, chattels, wares, merchandise, and debts, wheresoever they may be found or known, and to make sale thereof, &c. for satisfaction and payment of the creditors.

The petitioning creditor must prosecute a commission at his own costs, until the choice of assignees; or the commissioners may appoint temporary assignees. Any creditor or creditors whose debt or debts is or are sufficient to entitle him or them to petition for a commission against all the partners of any firm, may petition for a commission against one or more partners of such firm, and every commission issued upon such petition shall be valid although it does not include all the partners of the firm, and in every commission against two or more persons it shall be lawful for the Lord Chancellor to supersede such commission as to one or more of such persons, and the validity of such commission shall not be thereby affected as to any person as to whom such commission is not ordered to be superseded, nor shall any such person's certificate be thereby affected. Auxiliary commissions for the proof of debts or examination of witnesses may also be issued by the chancellor. But the examinations are to be annexed to the original commission.

2. The commissioners take oath impartially and honestly to execute their office; and they take a fee of twenty shillings for every meeting and for the signature of every deed and conveyance, and the bankrupt's certificate. The first duty is, upon proof made before them of the petitioning creditor's debt or debts, and of the trading and act or acts of bankruptcy of the person or persons against whom such commission is issued, to adjudge such person or persons bankrupt. Then the commissioners 'shall forthwith cause notice of such adjudication to be given in the London Gazette, and shall thereby appoint three public meetings for the bankrupt to surrender and conform, the last of which meetings shall be on the forty-second day hereby limited for such surrender.' No commission shall abate by reason of a demise of the crown, and (if by reason of the death of commissioners, or for any other cause, it becomes necessary) any commission may be renewed, but only half the fees usually paid upon obtaining commissions shall be paid for the same; and if any bankrupt shall die after adjudication, the commissioners may proceed in the commission as they might have done if he were living.

3. The messenger of the commissioners may break open the bankrupt's doors, &c. and seize upon his body or property; and if the bankrupt be in prison or in custody, it shall be lawful for the person so appointed as aforesaid to seize any property (his necessary wearing apparel only excepted) in the custody or possession of such bankrupt, or of any other person, in any prison or place where such bankrupt is in custody. But, in ordinary cases, the messenger proceeds quietly to enter on the bankrupt's premises, and take possession of his goods. The commissioners are empowered to summon persons suspected of having bankrupt's property in their hands, &c.; and compel them to produce books, &c. under pain of being committed to prison without bail. They may even summon the bankrupt's wife. And the concealment of his effects subjects other parties to a fine of £100.

4. At the three several meetings appointed by the commissioners, and at every other meeting by them appointed for proof of debts (whereof, and of the purport whereof, ten days notice shall have been given in the London Gazette), every creditor of the bankrupt may prove his debt by his own oath; and all bodies politic and public companies incorporated or authorised to sue or bring actions, either by charter or act of parliament, may prove by an agent, provided such agent shall in his deposition swear that he is such

agent, and that he is authorised to make such proof; and if any creditor shall live remote from the place of the meeting of the commissioners, he may prove by affidavit, sworn before a master in chancery, ordinary or extraordinary; or if such creditor shall live out of England, by affidavit sworn before a magistrate where such creditor shall be residing, and attested by a notary public, British minister, or consul: and no creditor shall pay any contribution on account of any such debt; provided, that it shall be lawful for the said commissioners to examine upon oath, either by word of mouth or by interrogatories in writing, every person claiming to prove a debt under the said commission, or to require such further proof, and to examine such other persons in relation thereto, as they shall think fit. Bonâ fide creditors are admitted to prove a debt notwithstanding any secret act of bankruptcy, before it was contracted, and, as special debts, the commissioners may order six months wages of servants or clerks to be paid in full; but of more than six months' wages, the residue must be proved as an ordinary debt; and debts not payable at the time of the bankruptcy may be proved, deducting rebate of interest; and the actual interest due on bills of exchange, &c. at the date of the commission. Sureties and persons liable for the debts of bankrupts can only prove, after having paid such debts. The value of annuities, however, may be calculated and proved; but other debts contingent at the time of the bankruptcy, are provable after the happening of the contingency. The commissioners may convey the personal estate, debts due to the bankrupt, and all his property to the assignees.

5. At the second meeting appointed by the commissioners, or any adjournment thereof, the assignees of the bankrupt's estate and effects are chosen; and all creditors who have proved debts under the commission to the amount of ten pounds and upwards entitled to vote in such choice; and also any person authorised by letter of attorney from any creditor or creditors, upon proof of the execution thereof, either by affidavit sworn before a master in chancery, ordinary or extraordinary, or by oath before the commissioners viva voce; and that the commissioners having power to reject any person so chosen who shall appear to them unfit to be such assignee, and upon such rejection a new choice of another assignee or assignees shall be made. And a joint creditor is entitled to prove under a separate commission, for the purpose of voting in the choice of assignees.

6. If any person against whom any commission has been issued, or shall hereafter be issued, whereupon such person hath been or shall be declared bankrupt, shall not, before three of the clock upon the forty-second day after notice thereof in writing to be left at the usual place of abode of such person, or personal notice in case such person be then in prison, and notice given in the London Gazette of the issuing of the commission, and of the meetings of the commissioners, surrender himself to them, and sign or subscribe such surrender, and submit to be examined before them, from time to time, upon oath, or, being a Quaker, upon solemn affirmation; or if any such bankrupt upon such examination shall not discover all his real or personal estate, and how and to whom, upon what consideration, and when he disposed of, assigned, or transferred any of such estate, and all books, papers, and writings relating thereunto (except such part as shall have been really and bonâ fide before sold or disposed of in the way of his trade, or laid out in the ordinary expense of his family); or if any such bankrupt shall not upon such examination deliver up to the commissioners all such part of such estate, and all books, papers, and writings relating thereunto, as be in his possession, custody, or power, (except the necessary wearing apparel of himself, his wife and children); or if any such bankrupt shall remove, conceal, or embezzle any part of such estate, to the value of £10 or upwards, or any books of account, papers, or writings relating thereto, with intent to defraud his creditors, every such bankrupt shall be deemed guilty of felony, and be liable to be transported for life, or for such term, not less than seven years, as the court before which he shall be convicted shall adjudge, or shall be liable to be imprisoned only, or imprisoned and kept to hard labor in any common gaol, penitentiary house, or house of correction, for any term not exceeding seven years. But the lord chancellor, or the commissioners have power, as often as they shall think fit, from time to time, to enlarge the time for the bankrupt surrendering himself, so as every such order be made six days at least before the day on which such bankrupt was to surrender himself; and an allowance is to be made to the bankrupt for his maintenance, out of his estate, until he shall have passed his examination. The bankrupt shall also be free from arrest or imprisonment by any creditor in coming to surrender; and after such surrender during the said forty-two days, and such further time as shall be allowed him for finishing his examination, provided he was not in custody at the time of such surrender; and if such bankrupt shall be arrested for debt, or on any escape warrant in coming to surrender, or shall after his surrender be so arrested within the time aforesaid, he shall, on producing the summons under the hands of the commissioners to the officer who shall arrest him, and giving such officer a copy thereof, be immediately discharged; and if any officer shall detain any such bankrupt after he shall have shown his summons to him, so signed as aforesaid, such officer shall forfeit to such bankrupt, for his own use the sum of £5. for every day he shall detain such bankrupt, to be recovered by action of debt in any court of record at Westminster, in the name of such bankrupt, with full costs of suit.

IV. *The effects of these provisions with regard to the bankrupt and his creditors* are, 1. All previous conveyances of property, made while he was insolvent, become void (except upon marriage of his children or for some valuable consideration).

2. He is no longer entitled to leases, or agreements for leases, nor liable for rents or covenants; but his assignees may elect to abide by or abandon a lease or agreement, and execute all powers previously vested in bankrupts. But

all conveyances by, and all contracts and other dealings and transactions by and with any bankrupt, bonâ fide made and entered into more than two calendar months before the date and issuing of the commission against him, and all executions and attachments against the lands and tenements or goods and chattels of such bankrupt, bonâ fide executed or levied more than two calendar months before the issuing of such commission, shall be valid, notwithstanding any prior act of bankruptcy by him committed; provided the person or persons so dealing with such bankrupt, or at whose suit or on whose account such execution or attachment shall have issued, had not at the time of such conveyance, contract, dealing, or transaction, or at the time of executing or levying such execution or attachment, notice of any prior act of bankruptcy by him committed: payments made by and to the bankrupt without notice, are valid, notwithstanding an act of bankruptcy. And no person or body corporate, or public company, having in his or their possession or custody any money, goods, wares, merchandises, or effects belonging to any bankrupt shall be endangered by reason of the payment or delivery thereof to the bankrupt or his order; provided such person or company had not at the time of such delivery or payment, notice that such bankrupt had committed an act of bankruptcy.

3. Every bankrupt who shall have duly surrendered and conformed himself to the laws in force concerning bankrupts at the time of issuing the commission against him, shall be discharged from all debts due by him when he became bankrupt, and from all claims and demands provable under the commission, in case he shall obtain a certificate of such conformity, so signed and allowed, and subject to such provisions as hereinafter directed; but no such certificate shall release or discharge any person who was partner with such bankrupt at the time of his bankruptcy, or who was then jointly bound, or had made any joint contract with such bankrupt. Such certificate shall be signed by four-fifths in number and value of the creditors of the bankrupt, who shall have proved debts under the commission to the amount of twenty pounds or upwards, or after two calendar months from the last examination of the bankrupt, then either by three-fifths in number and value of such creditors, or by nine-tenths in number of such creditors, who shall thereby testify their consent to the said bankrupt's discharge as aforesaid; and no such certificate shall be such discharge, unless the commissioners shall in writing, under their hands and seals, certify to the Lord Chancellor that such bankrupt has made a full discovery of his estate and effects, and in all things conformed himself as aforesaid, and that there does not appear any reason to doubt the truth or fulness of such discovery, and also that the creditors have signed in the manner hereby directed, and unless the bankrupt make oath in writing that such certificate and consent were obtained without fraud, and unless such certificate shall, after such oath, be allowed by the Lord Chancellor, against which allowance any of the creditors of the bankrupt may be heard before the Lord Chancellor. But the commissioners shall not sign any certificate unless they shall have proof, by affidavit in writing, of the signature of the creditors thereto, or of any person thereto authorised by any creditor, and of the authority by which such person shall have so signed the same; and if any creditor reside abroad, the authority of such creditor shall be attested by a notary public, British minister, or consul; and every such affidavit, authority, and attestation, shall be laid before the Lord Chancellor, with the certificate, previous to the allowance thereof.

Any contract or security made or given by any bankrupt or other person unto or in trust for any creditor, or for securing the payment of any money due by such bankrupt at his bankruptcy, as a consideration or with intent to persuade such creditor to consent to, or sign such certificate, shall be void, and the money thereby secured or agreed to be paid shall not be recoverable, and the party sued on such contract or security may plead the general issue, and give this act and the special matter in evidence. And, finally, any bankrupt who shall, after this certificate shall have been allowed, be arrested, or have any action brought against him for any debt, claim, or demand, hereby made provable under the commission against such bankrupt, shall be discharged upon common bail, and may plead in general that the cause of action accrued before he became bankrupt, and may give this act and the special matter in evidence, and such bankrupt's certificate, and the allowance thereof, shall be sufficient evidence of the trading, bankruptcy, commission, and other proceedings precedent to the obtaining such certificate; and if any such bankrupt shall be taken in execution, or detained in prison for such debt, claim, or demand, where judgment has been obtained before the allowance of his certificate, it shall be lawful for any judge of the court wherein judgment has been so obtained, on such bankrupt's producing his certificate, to order any officer who shall have such bankrupt in custody by virtue of such execution, to discharge such bankrupt without exacting any fee, and such officer shall be hereby indemnified for so doing.

It is nevertheless provided that if any person who shall have been so discharged by such certificate as aforesaid, or who shall have compounded with his creditors, or who shall have been discharged by any insolvent act, shall be or become bankrupt, and have obtained or shall hereafter obtain such certificate as aforesaid, unless his estate shall produce (after all charges) sufficient to pay every creditor under the commission fifteen shillings in the pound, such certificate shall only protect his person from arrest and imprisonment, but his future estate and effects (except his tools of trade and necessary household furniture, and the wearing apparel of himself, his wife and children), shall vest in the assignees under the commission.

A scale of allowance on the other hand is made for every bankrupt who shall have obtained his certificate, if the net produce of his estate shall pay the creditors who have proved under the commission ten shillings in the pound; in which case he shall be allowed five per cent.

out of such produce, to be paid him by the assignees, provided such allowance shall not exceed four hundred pounds; and every bankrupt, if such produce shall pay such creditors twelve shillings and sixpence in the pound, shall be allowed and paid as aforesaid seven pounds ten shillings per cent., provided such allowance shall not exceed five hundred pounds; and every bankrupt, if such produce shall pay such creditors fifteen shillings in the pound or upwards, shall be allowed and paid as aforesaid ten pounds per cent., provided such allowance shall not exceed six hundred pounds; but if such produce shall not pay such creditors ten shillings in the pound, such bankrupt shall only be allowed and paid so much as the assignees and commissioners shall think fit, not exceeding three pounds per cent. and three hundred pounds.

As to the important point of making dividends, the commissioners shall, not sooner than four nor later than twelve calendar months from the issuing the commission, appoint a public meeting (whereof, and of the purport whereof, they shall give twenty-one days notice in the London Gazette), to make a dividend of the bankrupt's estate, at which meeting all creditors who have not proved their debts shall be entitled to prove the same; and the said commissioners at such meeting shall order such part of the net produce of the bankrupt's estate in the hands of the assignees, as they shall think fit, to be forthwith divided amongst such creditors as have proved debts under the commission, in proportion to their respective debts, and shall make an order for a dividend in writing under their hands, and shall cause one part of such order to be filed amongst the proceedings under the commission, and shall deliver another part thereof to the assignees, which order shall contain an account of the time and place of making such order, of the amount of the debts proved, of the money remaining in the hands of the assignees to be divided, of how much in the pound is then ordered to be paid to every creditor, and of the money allowed by the commissioners to be retained by the assignees, with their reasons for allowing the same to be so retained; and the assignees, in pursuance of such order (and without any deed of distribution made for that purpose), shall forthwith make such dividend, and shall take receipts in a book to be kept for that purpose from each creditor, for the dividend received by such creditor; and such order and receipt shall be a discharge to every such assignee for so much as he shall pay pursuant to such order; and no dividend shall be declared, unless the accounts of the assignees shall have been first so audited as aforesaid, and such statement delivered by them upon oath as aforesaid.

No creditor having security for his debt, or having made any attachment in London, or any other place, by virtue of any custom there used, of the goods and chattels of the bankrupt, shall receive upon any such security or attachment more than a rateable part of such debt, except in respect of any execution or extent served and levied, by seizure upon, or any mortgage of or lien upon any part of the property of such bankrupt before the bankruptcy; provided that no creditor, though for a valuable consideration, who shall sue out execution upon any judgment obtained by default, confession, or nil dicit, shall avail himself of such execution to the prejudice of other fair creditors, but shall be paid rateable with such creditors.

If the bankrupt's estate shall not have been wholly divided upon the first dividend, the commissioners shall, within eighteen calendar months after the issuing of the commission, appoint a public meeting (whereof, and of the purport whereof, they shall give twenty-one days notice in the London Gazette), to make a second dividend of the bankrupt's estate, when all creditors who have not proved their debts may prove the same; and the commissioners at such meeting, after taking such audit as herein-before directed, shall order the balance in the hands of the assignees to be forthwith divided amongst such of the creditors as shall have proved their debts; and such second dividend shall be final, unless any action at law or suit in equity be depending, or any part of the estate be standing out, not sold or disposed of, or unless some other estate or effects of the bankrupt shall afterwards come to the assignees, in which case they shall, as soon as may be, convert such estate and effects into money, and within two calendar months after the same shall be so converted, divide the same in manner aforesaid.

Lastly, if any assignee, under any commission of bankrupt, shall have, either in his own hands or at any banker's, or otherwise subject to his order or disposition, or to his knowledge in the hands of, or in the order and disposition of himself and any co-assignee or co-assignees, or of any or either of them, any unclaimed dividend or dividends, amounting in the whole to the sum of fifty pounds, and shall not within six months after this act shall have taken effect, or two calendar months after the expiration of one year after the declaration and order of payment of such dividend or dividends made by the commissioners, either pay to the creditor or creditors entitled thereto, or cause a certificate thereof to be filed in the office of the Lord Chancellor's secretary of bankrupts, containing a full and true account of the name or names of the creditor or creditors to whom such unclaimed dividend or dividends is or are respectively due, and of the amount of such dividend or dividends respectively (such account being signed by the assignee or assignees rendering the same, and attested by the solicitor to the commission, or the solicitor to the assignee or assignees signing the same), such assignee or assignees shall be charged, in account with the estate of the bankrupt, interest upon such unclaimed dividend or dividends, to be computed from the time that such certificate is hereby directed to be filed, at the rate of two pounds per centum per annum, for such time as he shall thenceforth retain the same, and also such further sum as the commissioners shall think fit, not exceeding in the whole twenty pounds per centum per annum; and the Lord Chancellor, or the said commissioners, may order the investment of any unclaimed dividends in the public funds, or in any government security for or on account of the creditors entitled, and

subject to such order as the Lord Chancellor may think fit to make respecting the same, who, if he shall think fit, may, after the same shall have remained unclaimed for the space of three years from the declaration of such dividends by the commissioners, order the same to be divided amongst and paid to the other creditors, and the proof of the creditors to whom such dividends were allotted shall from thenceforth be considered as void as to the same, but renewable as to any future dividends, to place them pari passu with the other creditors, but not to disturb any dividends which shall have been previously made.

We have thus fully stated the general provisions of the late act, as useful to all persons connected with trade; more minute provisions will of course engage the attention and require the aid of professional men.

BANKS, Cape, the north-east point of Botany Bay, on the east coast of New Holland.

Banks' Island, an island of New Zealand, off the north-east coast of Tavai Poenammoo. It is about sixty miles in circumference, and sufficiently high to be visible at the distance of twelve or fifteen leagues. It is barren but inhabited. Distant fifteen miles from Tavai Poenammoo. The south point lies in long. 186° 30′ W., latitude 43° 32′ S. Also, an island in the North Pacific, near the west coast of North America, about sixty miles long, and five broad. Long. 129° 45′ to 130° 10 W., lat. 50° 30′ N.

Banks' Port, a harbour on the north-west coast of America, south-east from Cape Edgecumbe, and north-west from Sea Otter Sound.

Banks (Sir John), Lord Chief Justice of the Common Pleas, in the reign of Charles I., was born at Keswick, in Cumberland, in 1589. He studied at Oxford, but took no degree: applying to the law, his extraordinary reputation in that profession soon recommended him to the king, who made him attorney to the prince in 1629; knighted him, and appointed him attorney-general in 1634; lord chief justice in 1640; and a member of the privy council in 1642. In these perilous times, he discharged the duties of his important and arduous offices with very general approbation. But at last lost his popularity, by declaring from the bench, in the summer circuit, that the actions of Essex, Manchester, and Waller, were treasonable; and the Commons voted him a traitor. Meantime his lady, being with her family at his seat at Corfe Castle, in the isle of Purbeck, was summoned to surrender by the friends of the parliament; but refused, though she had then only five men in the castle, and sustained a siege, by William Earl, with not more than forty men. At last lady Banks was relieved by the arrival of lord Caernarvon with a body of horse. Sir John continued with the king at Oxford till 1644, when he died.

Banks (John), an English author, born at Sunning, in Berkshire in 1709. He was bred a weaver at Reading, but gave up that business and went to London, where he became a bookseller. Not succeeding in this, he published various tracts, particularly a Critical Review of the Life of Oliver Cromwell, which met with a favorable reception. He died in 1751.

Banks (Thomas), an eminent English sculptor, was born in 1735, and was son of Mr. William Banks, steward of the duke of Beaufort. He was educated with Kent, the well-known architect of that period; but afterwards, showing a preference for sculpture, studied it at the Royal Academy with great success, and was elected to be sent as one of its students to Italy. Here he executed several good pieces, particularly a basso-relievo of Caractacus, in the possession of the duke of Buckingham; and a Cupid catching a butterfly, which was afterwards purchased by the empress Catharine. He went from Italy to Russia, where he staid two years, and returned to his own country to acquire both fame and fortune. Among his works are a colossal statue exhibiting Achilles mourning the loss of Briséis, in the hall of the British Institution; and the monument of Sir Eyre Coote, in Westminster Abbey. Mr. Banks was elected a member of the Royal Academy not long after his return from Russia, and finished his useful life in February 1805.

Banks (Sir Joseph), the late celebrated naturalist, was the son of William Banks, Esq. of Revesby Abbey, Lincolnshire, where he was born in 1743. He received his education at Eton and Oxford, where he continued till the death of his father. In 1765 he made a voyage to Newfoundland and Labrador, for the purpose of making researches relative to natural history; and in 1763 embarked with his friend, Dr. Solander, in the first voyage round the world made by the great captain Cook. In the course of this expedition Mr. Banks, in traversing the rocks of Terra del Fuego, narrowly escaped perishing from intense cold. In consequence of a misunderstanding with captain Cook, he did not join, as he intended, in the expedition of 1772; but the same year undertook a voyage to the Western Isles of Scotland and to Iceland, in the course of which he made important additions to our knowledge of those regions. About this time he received the compliment of a diploma of LL. D. from his alma mater. In 1778 he was made a baronet and elected president of the Royal Society. Some unpleasant dissentions, which arose in the society not long after, were almost the only circumstances which occurred to interrupt his tranquillity. These, however, subsided, and the remainder of his life was passed amongst scientific associates, and the prosecution of researches connected with natural history. His house was always open to the learned world. He died June 19, 1820, at his seat at Spring Grove, Middlesex. The published writings of Sir Joseph Banks are neither numerous nor important. They consist of papers in the Philosophical Transactions, the Archæologia, the Transactions of the Horticultural Society, and other periodical works; and a small tract, entitled A Short Account of the Causes of the Diseases in Corn, called by Farmers the Blight, the Mildew and the Rust, with plates. London, 1803, 4to. This impression was only for private distribution; but an edition in 8vo. was published in 1805. Sir Joseph possessed a noble library of works on natural history, of which an admirable catalogue, in five vols. 8vo. was compiled by his librarian Mr. Dryander.

Banks-Brae, a hill of Scotland, in Renfrewshire, on the south-west border of the parish of Kilbarchan, beautifully adorned with plantations.

BANKSIA, in entomology, a species of papilio, (nymph), with angulated wings; brown above, with a yellowish disk. Fabricius. It is a native of New Holland, and the papilio ismene of Cramer.

Banksia, in botany, a genus of the monogynia order, and tetandria class of plants. The amentum is scaly, the corolla consists of four petals. The antheræ are in the cavity of the folds and sessile; the capsule is bivalvular; and the seed is solitary, and bipartite. There are four principal species, viz. 1. B. dentata; 2. B. ericæfolia; 3. B. integrifolia; 4. B. serrata; all natives of New Holland. See Mr. Brown's Transactions of the Linnæan Society, vol. x. p. 202; and Commentaries to the Hortus Kewensis, vol. i. p. 213.

Banksia Abyssinica, a beautiful Abyssinian tree, so named by Bruce.

BANKSII, a species of scarabæus melontha; described by Fabricius, from a specimen in the museum of Sir Joseph Banks. The head and thorax are black; wing-cases villose, and legs testaceous; abdomen short and retuse.

Banksii, a species of cimex (reduvius), that inhabits India. It is rufous above, with black wings; abdomen deep black; border rufous.

Banksii, a species of chrysomela that inhabits Calabria. It is brassy above, beneath testaceous.

Banksii, a species of cerambyx (lamia), that is found at the Cape of Good Hope. It is of a grayish color; thorax slightly spined; wing-cases speckled with ferruginous, and marked with two cinereous bands.

BANLEUGA, Banileu, or Bannileuga, in writers of the middle age, the territory within which the jurisdiction of municipal magistrates, or ordinary judges of a city, town, or the like, is confined: so called, because within this tract they make their proclamations, prohibitions, and other acts of justice and policy, comprised under the name of ban or bannum.

BANMORE, Eilan Nan, Gael. i.e. the island of great women; the ancient name of the island of Eigg.

BANN, from the Brit. ban, i.e. clamor, a proclamation, public notice, command, or prohibition.

Bann, in ancient jurisprudence, denoted proscription or banishment for a crime proved; because anciently published by sound of trumpet; or, as Vossius thinks, because those who did not appear at the above-mentioned summons, were punished by proscription. Hence, to put a prince under the bann of the empire, is to declare him divested of all his dignities. The sentence denotes an interdict of all intercourse and offices of humanity with the offender; the form of which seems taken from that of the Romans, who banished persons by forbidding them the use of fire and water. Sometimes also cities were put under the imperial bann; that is, stripped of their rights and privileges. The word also denotes a pecuniary mulct, or penalty, laid on a delinquent for offending against a bann.

Bann, in military affairs, a proclamation made in the army by beat of drum, sound of trumpet, &c. requiring the strict observance of discipline, either for the declaring a new officer, or punishing an offender.

Bann, a river of Ireland, descending from the north of the mountains of Mourne, and flowing north-west into the Lough Neagh: again issuing from the north side of that lake, it passes Coleraine, and enters the sea a few miles east of Lough Foyle. Its course, including the lough, is about seventy miles; and, with the canal of Newry, which joins it to the Irish sea, it makes the north-east portion of Ireland a peninsula.

Bann, or Bannus, a title anciently given to the governor or viceroy of Croatia, Dalmatia, and Sclavonia.

Bann, Episcopal, bannus episcopalis, a mulct paid to the bishop by those guilty of sacrilege and other crimes.

Bann of Harvest, or Vintage, &c. in the ci-devant French customs, imported a prohibition to reap, or gather the grapes, without the leave of the lord.

Banns of Marriage are solemn notices of matrimonial contracts, made in the parish-church before marriage; that if there be any objections to either party as to prior engagements, &c. there may be an opportunity of making them.

The publication of banns, popularly called asking in the church, was intended to prevent clandestine marriages: but a licence may be obtained for the marriage, and then this ceremony is omitted: but ministers are not to celebrate matrimony between any persons without a licence, except the banns have been first published three several times upon pain of suspension, &c. The use of matrimonial banns is said to have been first introduced in the Gallican church, though something like it obtained even in the primitive times: and it is this that Tertullian is supposed to mean by trinundina promulgatio. The council of Lateran first extended and made the usage general. By the ordinance of Blois, no person could validly contract marriage, without a preceding proclamation of three banns; nor could any person whatever be exempt except for the two last.

Banns, Papal, solemn anathemas, or excommunications, attended with curses, &c.

BANNAGHER, or Banagher, a town of Ireland, in King's county, Leinster, on the Shannon, fifteen miles south of Athlone.

BANNALEC, a town of Brittany, France, department of Finisterre, arrondissement of Quimperlé, the head of a canton; has 4700 inhabitants. It is four miles from Rosrporden and six from Quimperlé.

BANNALIS Mola, or Bannal Mill, a kind of feudal service, whereby the tenants of a district are obliged to carry their corn to be ground at a certain mill, or to be baked at a certain oven, for the benefit of the lord. This in Scotland is called thirlage.

BANNEC, an island in the English channel, near the coast of France. Long. 4° 55. W., lat. 48° 25′ N.

BAN'NER, BAN'NERED, BAN'NERET, BAN'NEROL. Fr. *banniere*, Ital. *banda*, *bandiera*, Ger. *banner*, Swed. *baner*, Dut. *baniere*. In old Sax. bansegn is the ensign or banner. From *bandvo*, *signum*; *bandvjan*, *significare*. *Bannerol*, or more properly *banderol*, is derived from *banderolle*, Fr. Spenser writes it *bannerall*; and the old Fr. is *banneralle*. The *banner*, *bandroll*, or *bansegn*, is probably the sign of union, which fastened to a pole, may be furled and unfurled at pleasure, like a roll of canvass or silk; and which armies and other bodies of men elevate as a standard, which distinguishes the party and cause which they have espoused, or the common purpose to which they have bound themselves. 'We find (say the writers in the Encyclopædia Britannica), a multiplicity of opinions concerning the etymology of the word *banner*; some deriving it from the Latin *bandum*, a band or flag; others from the word *bann*, to summon the vassals to appear in arms; others again from the German *ban*, a field or tenement, because landed men alone were allowed a banner; and finally, there are some who think it is a corruption of *panniere*, from *pannus*, cloth; because banners were originally made of cloth.

Lift ye up a *banner* upon the high mountains.
Isaiah

Then Io tryumphé! O great beautie's queen,
Advance the *banner* of thy conquest hie.
Spenser.

From France there comes a power who already
Have secret spies in some of our best ports,
And are at point to shew their open *banner*.
Shakspeare.

All in a moment through the gloom were seen
Ten thousand *banners* rise into the air,
With orient colours waving. *Milton.*

A gentleman told Henry, that Sir Richard Croftes, made *banneret* at Stoke, was a wise man; the king answered, he doubted not that, but marvelled how a fool could know. *Camden.*

King Oswald had a *bannerol* of gold and purple set over his tomb. *Id.*

Philip Augustus, and Richard the First, are the only kings of France and England who have fought under the same *banners*. *Gibbon.*

BANNER, in heraldry, such a flag is borne as a charge, in coats of arms, and when open and flying is called 'the banner disveloped,' as 'the field is Jupiter, three banners disveloped, a bend Sol,' which are said to have been the arms of the kingdom of Baldachia.

BANNER OF DENMARK, or the DANISH BANNER, was a famous magical standard, taken from the Danes by Alfred the Great, in spite of its miraculous powers and properties, which are thus described by Sir John Spelman. 'It was a banner with the image of a raven magically wrought by the three sisters of Hungar and Hubba, on purpose for their expedition, in revenge of their father Lodebroch's murder, made, they say, almost in an instant, being by them at once begun and finished in a noontide; and believed by the Danes to have carried great fatality with it, for which it was highly esteemed of them. It is pretended, that being carried in battle, towards good success it would always seem to clap its wings, and make as if it would fly; but towards the approach of mishap, it would hang down and not move!'

The BANNER OF FRANCE was the largest and richest of all the flags borne by the ancient kings in their military expeditions. St. Martin's cap was in use 600 years as the banner of France; it was made of taffety, painted with the image of that saint, and laid one or two days on his tomb to prepare it for use. This was succeeded by the famous auriflamma, or oriflamme. About the year 1100 was introduced a more pompous apparatus; the mode of which was borrowed from Italy. The banner-royal was fastened to the top of a mast, or some small tree planted on a scaffold, borne on a chariot drawn by oxen, covered with velvet housings, decorated with devices, or cyphers of the reigning prince. At the foot of the tree was a priest, who said mass early every morning. Ten knights mounted guard on the scaffold night and day, and as many trumpets at the foot of the tree never ceased flourishing to animate the troops. This cumbrous machine continued in use about 130 years. Its post was in the centre of the army. And here the chief feats were performed to carry off and defend the royal banner: for there was no victory without it; nor was an army reputed vanquished till they had lost this banner.

BANNERET, from banner. A knight made in the field, with the ceremony of cutting off the point of his standard, and making it a banner. They are next to barons in dignity; and were anciently called by summons to parliament. It is also the name of an officer or magistrate of Rome towards the close of the fourteenth century. The people of that city, and throughout the territory of the church, during the disputes of the antipopes, had formed a kind of republican government, where the whole power was lodged in the hands of a magistrate, called senator, and twelve heads of quarters called bannerets, by reason of the banners which each raised in his district.

BANNERETS, an ancient order of knights, or feudal lords; who, possessing several large fees, led their vassals to battle under their own flag or banner, when summoned thereto by the king. They are also called in ancient writers milites, vexilliferi, and vexillarii, bannerarii, bannarii, banderisii, &c. There are two kinds of knights, great and little; the first whereof were called bannerets, the second bachelors; the first composed the upper, the second the middle nobility. The banneret was a dignitary allowed to march under his own flag, whereas the bachelarius eques followed that of another. To be qualified for a banneret, one must be a gentleman of family, and must have a power to raise a certain number of armed men, with estate enough to subsist at least twenty-eight to thirty men. This must have been very considerable in those days; because each man, besides his servant, had two horsemen to wait on him armed, the one with a crossbow, the other with a bow and hatchet. As he was not allowed to be a baron who had not above thirteen knights' fees, so he was not admitted to be a banneret if he had less than ten. The order of banneret, according to Spelman, was a middle one, between a baron and a simple knight; called

sometimes also vexillarius minor, to distinguish him from the greater, that is from the baron, to whom alone properly belonged the jus vexilli, or privilege of the square flag. Hence the banneret was also called banneretus, quasi baro minor; a word frequently used by English writers in the same sense as banneret was by the French, though neither of them occur before the time of Edward II. Some will have bannerets to have originally been persons who had some portion of a barony assigned them; and enjoyed it under the title of baro proximus, and that with the same prerogatives as the baron himself. Some again find the origin of bannerets in France, others in Brittany, others in England. These last attribute the institution of bannerets to Conan, lieutenant of Maximus, who commanded the Roman legions in England under the empire of Gratian in 383. This general, say they, revolting, divided England into forty cantons, and in these cantons distributed forty knights, to whom he gave a power of assembling, on occasion, under their several banners, as many of the effective men as were found in their respective districts: whence they are called bannerets. However this be, it appears from Froissard, &c. that anciently such of the military men as were rich enough to raise and subsist a company of armed men, and had a right to do so, were called bannerets. Not, however, that these qualifications rendered them knights, but only bannerets; the appellation of knight being only added thereto, because they were simple knights before. Bannerets were second to none but knights of the garter. They were reputed the next degree below the nobility, taking precedence next to the knights of the bath, and were allowed to bear arms with supporters, which none else may under the degree of a baron. In France, it is said, the dignity was hereditary, but in England it died with the person who gained it. The order dwindled on the institution of baronets by king James I., Sir John Smith made so after Edgehill-fight, for rescuing the standard of King Charles I., being the last banneret, until the late Sir William Erskine, on his return from the continent in 1764, was made a knight-banneret in Hyde Park by his late Majesty, in consequence of his distinguished conduct at the battle of Emsdorff. But he was not acknowledged as such in this country, although he was invested with the order between the two standards of the fifteenth regiment of light dragoons, because the ceremony did not take place where the engagement happened. Captain Trollope of the Royal Navy was another knight-banneret, created by Geo. III., after lord Duncan's victory at Camperdown, but as this involved some heraldic difficulties on points of precedency, and there was some apprehension of jealousy on the part of baronets, the practice was discontinued. In Switzerland the banneret was a civil officer like the Gonfalonier in some of the Italian republics; and at Lausanne the title was conferred on those magistrates who had the privilege of carrying the banner of that city at the confederation of the cantons.

The form of creating bannerets was on a day of battle; the candidate presented his flag to the king or general, who cutting off the train or skirt thereof, and making it a square, returned it again, the proper banner of bannerets, who are hence sometimes called knights of the square flag. There seems to have been bannerets created either in a different manner, or by others than the sovereign; since King James, in the patent of baronets, gives them precedence to all knights bannerets, except such as are created by the king himself in the field; which implies, either that there are some of this order created out of the field, or by inferior persons.

BANNEROL, more properly BANDEROL, from *banderole*, Fr. a little flag or streamer.

BAN'NIAN, *n. s.* 1. A man's undress, or morning gown, such as is worn by the Banians in the East Indies. 2. A native of India; now usually applied to a Gentoo servant employed in managing the commercial affairs for Englishmen.

BANNIAN-DAY, in common parlance, a day of self-denial; of shifts and expedients; derived probably from sacred or fast-day.

BANNIAN-TREE. A sacred fig-tree, growing in India, called by our old herbalists 'the arched Indian fig-tree;' from the various branches of which grow little sprigs downwards, till they reach the ground, take root, as Milton has observed,

> And daughters grow
> About the mother tree, a pillar'd shade,
> High o'er-arch'd, and echoing walks between.
> *Paradise Lost*

BANNIANS. See BANIANS.

BANNIER (John), a Swedish general, born in 1601. He served under Gustavus Adolphus, and on his death became commander-in-chief. After gaining many victories, and taking several important places, fortune favored the Imperialists, and they at last drove him out of Bohemia. He died in 1641, on his retreat from the German dominions.

BANNIMUS, q. d. we banish, from the obsolete verb *bannio*, the form of expulsion of any member from the University of Oxford, by affixing the sentence up in some public place, as a promulgation of it.

BANNITUS, an exile or outlaw.

BAN'NOCK, *n. s.* A kind of oaten or pease-meal cake, mixed with water, and baked upon an iron plate over the fire; used in the northern counties, and in Scotland.

BANNOCKS differ from cakes, in being thicker and softer; and their taste is thought to be improved by being baked in the embers, or on a stone placed before the fire, or a slate above it.

BANNOCK-BURN, a village of Scotland, in Stirlingshire, seated on the Bannock, from whence it is named, famous for the decisive battle fought near it between king Robert Bruce of Scotland, and Edward II. of England. A.D. 1314.

It is to be regretted that to poetical narrative only (that of the Scottish poet Barbour particularly) we must look for the existing detail of the events of this memorable day. They, however, were so important, and have since been so frequently alluded to by poets and historians, that we cannot omit to furnish the reader with the best account we can digest. On Saturday the 22d of June, Bruce having received intelligence that the English had reached Edinburgh,

drew his army out of his encampment to take up a position in the neighbourhood of Stirling. Here he occupied a wood, extending on the right towards the church of St. Ninian, and on the left nearly, it is supposed, in the direction of the road from Edinburgh to Stirling; directing a number of small pits to be dug knee-deep, and covered with turf, which concealed at the bottom a kind of spikes called calthrops, designed for the destruction of the enemy's cavalry. The position was besides protected by a neighbouring morass. On Sunday, the 23d, an alarm being given of the approach of the enemy, Bruce prepared to receive them. His army heard mass: and in answer to a proclamation that whoever would, might retire, all unanimously declared their resolution to conquer with him or die. His right wing was commanded by his brother Edward, the left by lord Douglas and the younger Stewart, and the centre by his nephew, Randolph, earl of Murray, while he himself commanded a reserve posted on a rising ground. The English army meanwhile had sent a squadron of 800 horse for the purpose of gaining Stirling castle by a circuitous route, which the king perceiving, reproached the earl of Murray with leaving the place exposed, and the latter hastened with 500 spearmen to turn the enemy, an object which he with difficulty accomplished. The van of the English army soon after appeared in sight. Henry de Bohun, a knight of the Hereford family, advancing a bow-shot before his comrades, now distinguished 'the Bruce' from a crown surmounting his helmet, and the manner in which he disposed his troops, he himself being in advance of his front. The Englishman advanced upon him, but his spear missing the king, the latter, rising in his stirrups, cleft his opponent's helmet with a single blow of his battle-axe, and Bohun fell: this was the only memorable event the first day. At the succeeding dawn Bruce reminded his troops of the past conduct of the enemy before them, their usurpation of the government of the country, and their barbarous treatment of those that had fallen into their hands, that they therefore were now to fight for all they held dear, their own liberty, and the comfort and existence of their families. He showed them his excellent position, urged the necessity for order, and to preserve their line unbroken, while he promised the amplest rewards to all who exerted themselves, and to their heirs if they fell. At daybreak Maurice, Abbot of Inchaffray, celebrated mass in front of the army, and exhorted the soldiers, bearing a crucifix in his hand. The troops now breakfasted on the ground, and Bruce created some of the most distinguished of his followers knights. Edward also in person commanded the English army, attended by a bodyguard of 500 cavalry: among his troops were 52,000 archers. He likewise was confident of victory, but the same unanimity did not subsist as among his foes; and the Scottish host having knelt to utter a prayer and receive benediction, he exclaimed to those around him, 'Behold, they kneel for mercy!' But they quickly undeceived him;—the armies approached, and a contest ensued, unexampled in the annals of British history. The English van, composed of cavalry, charged the right wing of the Scots in full gallop. Here Edward Bruce commanded, and received them with intrepidity. While this wing was engaged, Randolph advanced to meet the main body of the enemy; and the left wing also hastened into the conflict. Repeated charges of cavalry in vain attempted to break the Scottish line—it was impenetrable; everywhere they were resisted and driven back. At this time the battle became general. The Scots were annoyed by the English archers; but they fought desperately with their spears, swords, and knives, and also with iron clubs or maces, and found the advantage of acting in a compact body, while the English forces were too unwieldy to be concentrated. The Scots were also protected by their light armour, which at the same time did not restrain their movements. Edward, the king's brother, was hard pressed by the English cavalry, and Murray, making a movement to his support, was almost overwhelmed by the multitude of the enemy, who presented a vast and extensive front. The Scottish king now directed Sir Robert Keith to take the archers in flank with 500 horse, and their impetuosity proved irresistible. The enemy were overthrown, and fled with precipitation. The earl of Gloucester, endeavouring to rally the fugitives, was unhorsed and slain. The numbers of the English finally proved their destruction: for those who recoiled threw the rest into disorder, and those who fell were trampled to death. The battle, notwithstanding, continued to rage, and victory was long and furiously contested. But, at length, the retainers of the Scottish camp, who had previously been sent to a valley in the rear, suddenly appeared on a neighbouring height, and the enemy, believing it a strong reinforcement, took at once to flight. Edward, with 500 horse, sought shelter in Stirling castle, but the governor found means to dissuade him from remaining there. The rout of his army became complete. Some sought refuge among the rocks of the castle, others hurried to the river Forth, and they were drowned; but the most terrific carnage was in the valley of the Bannock, for the ascent towards the east being difficult, and probably impeded by wood, the fugitives were exposed to inevitable destruction. Scarcely any who took that direction escaped; and the course of the river is said to have been completely dammed up by the English who were slain. Edward, hotly pursued, continued his flight, followed by sixty horse, to Winchburgh, twenty miles from the field of battle, where, again mounting, the pursuit was continued to Dunbar castle, whence he was ultimately conveyed by a vessel to England. The loss on both sides in this memorable battle was immense. Barbour asserts that the English had 30,000 men and 200 knights killed: but the truth of this calculation is questionable, as it is said elsewhere that only forty-two knights were slain, and sixty made prisoners. Barbour also affirms that only two Scotsmen of note fell on the occasion, Sir William Vipont and Sir Walter Ross. The earl of Gloucester's fate, who was the near relative to Edward, was much lamented; and historians state that had the Scots known him he would not have fallen. His body

was carried to St. Ninian's church, and sent with that of lord Clifford to England. 'O day of vengeance and fatality,' one of our historians exclaims, 'hateful accursed day, to be blotted from the circle of the year; a day which tarnished the glory of England, despoiled our nation, and enriched its enemies to the amount of £200,000. How many valiant youths and illustrious nobles, how many excellent horses and beautiful arms, how many precious vestments and golden vessels, were lost in that single unfortunate day.' The privy seal of Edward was among the spoils, and afterwards restored by Robert. He is said, indeed to have acted upon this victory with that clemency and moderation which has rarely been equalled.

The consequences of this great battle were the surrender of the fortresses of Scotland to Bruce, the liberation of the inhabitants from a foreign yoke, and the firm establishment of that prince upon the throne. Memorials of it are said still to remain near the spot, where armour and weapons are frequently dug up; and at an interval of 500 years the inhabitants of the vicinity met on the 24th of June 1814, to celebrate the triumph of their ancestors. Sir Walter Scott has commemorated it with enthusiasm in his Lord of the Isles.

BANNOW, a town of Ireland, ten miles south-west of Wexford.

BANNUM, in law, the utmost bounds of a manor or town; bannum capitis was a mulct paid in cattle.

BANNUS DEI, the bann of God, an expression used by writers of the middle age, for excommunication.

BANNUS REGIS, a proclamation of silence anciently made by the court, before the encounter of the champions in a combat.

BANOLAS, a town of Spain, in Catalonia, district of Gerona, with 3000 inhabitants, and a considerable trade in linen.

BANOS, a town of Leon, Spain, thirty miles from Plasencia, in Estremadura. The number of families is about 300, who are employed principally in the manufacture of linen. It takes its name from the hot sulphureous baths to the north-east of the town. Here are to be seen the remains of a Roman mound or dyke. The territory is covered with olives, chestnuts, and vines; the last produces annually 15,000 arobas of wine.

BANOY, the name given by the people of the Philippine Islands, to a species of hawk, somewhat larger than our sparrow-hawk, of a yellowish color on the back and wings, and white under the belly. It is the most common species of hawk in that part of the world, and is very voracious.

BAN'QUET, *v.* & *n.*, BAN'QUETANT, BANQUET'ER, BAN'QUETING. Fr. *banquet*, Ital. *banchetto*, Span. *banquete, vanqueto;* Germ. and Dut. *bancket*. Derived from *bank*, a bench or table, around which messmates or companions sit to eat or feast together. It now signifies a luxurious and sumptuous entertainment. Whether the feast, or the dessert which succeeds it, or both.

Shall the companions make a *banquet* of him?—Shall they part him among the merchants? *Job.*

In which how many wonders doe they reede,
To their conceipt that others never see!
Now of her smiles with which their soules they feede,
Like gods with nectar in their *bankets* free. *Spenser.*

The mind shall *banquet*, tho' the body pine:
Fat paunches make lean pates, and dainty bits
Make rich the ribs, but bankerout the wits.
Shakspeare.

Welcome his friends,
Visit his countrymen, and *banquet* them. *Id.*
In his commendations I am fed;
It is a *banquet* to me. *Id.*

You cannot have a perfect palace, except you have two sides; a side for the *banquet*, and a side for the household; the one for feasts and triumphs, and the other for dwelling. *Bacon.*

They were *banqueted* by the way, and the nearer they approached, the more increased the nobility. *Sir J. Hayward.*

In a *banqueting*-house, among certain pleasant trees, the table was set near to an excellent water-work. *Sidney.*

Home then, my lambs; the falling drops eschew:
To-morrow shall ye feast in pastures new,
And with the rising sun, *banquet* on pearled dew.
Fletcher's Purple Island.

When Venus was born all the gods were invited to a *banquet*. *Burton's Anatomy of Melancholy.*

If a fasting-day come, he hath on that day a *banquet* to make. *Hooker.*

At that tasted fruit,
The sun, as from Thyestan *banquet*, turn'd
His course intended. *Milton.*

So long as his innocence is his repast, he feasts and *banquets* upon bread and water. *South.*

That dares prefer the toils of Hercules,
To dalliance, *banquets*, and ignoble ease.
Dryden.

At the walk's end behold, how rais'd on high,
A *banquet*-house salutes the southern sky. *Id.*

I purpos'd to unbend the evening hours,
And *banquet* private in the women's bow'rs.
Prior

With royal *banquets* feasts my longing soul,
And seals his truth with sacramental wine.
Mrs. Rowe.

BANQUETING-HOUSE, BANQUETING ROOM. The ancient Romans supped in the atrium, or vestibule of their houses; but, in after-times, magnificent saloons, or banqueting rooms, were built for the more commodious and splendid entertainment of their guests. Lucullus had several of these, each distinguished by the name of some god; and there was a particular rate of expense appropriated to each. Plutarch relates with what magnificence he entertained Cicero and Pompey, who went with design to surprise him, by telling only a slave who waited, that the cloth should be laid in the Apollo. The emperor Claudius, among others, had a splendid banqueting room named Mercury. But every thing of this kind was outdone by the lustre of that celebrated banqueting house of Nero, called domus aurea; which, by the circular motion of its partitions and ceilings, imitated the revolution of the heavens, and represented the different seasons of the year, which changed at every service, and showered down flowers, essences and perfumes, on the guests. See SALOON.

BANQUETTE, *n. s.* Fr. in fortification, a small bank at the foot of the parapet, for the soldiers to mount upon when they fire.

BANSTICKLE, in ichthyology. See GASTEROSTEUS.

BAN'STICKLE, *n. s.* A small fish, called stickleback.

BANTAM, a large town of the island of Java, in the East Indies, once the capital of an independent state. But its harbour has been gradually choked up with soil from the surrounding hills: and the air is so unhealthy that its inhabitants have been compelled to desert the place almost entirely. In 1595 the king of Bantam called in the assistance of the Dutch of Java, against the Portuguese, and as a return for their aid allowed them to build a factory here, where also the English, under Captain Lancaster, established one in 1603. At this time the sovereign had a commercial navy of his own, and until the latter end of the seventeenth century, when he sent an embassy to England, to request assistance against the Dutch. In the following year the latter took his capital, and in 1683, they entirely dispossessed him of the government; the English factory withdrawing to Surat.

The Dutch East India Company now keep a garrison here, nominally to defend the king, but in fact to have him always in their own power. The chief authority on the part of the Dutch East India Company was vested in a senior merchant, with the title of Commandant, who had the management of the trade, which consisted chiefly in pepper and some cotton yarn. To the commandery at Bantam belonged the residencies of Lampong, Toulang, Baunang, and Lampong Samanca, situated on the southern part of Sumatra. The sovereigns possess the power of life and death over their subjects, but pay an annual tribute of six million pounds of pepper to the Dutch.

The climate of Bantam, says Mr. Hamilton, is still more pestilential than that of Batavia, of which a remarkable instance is mentioned. On the night of the 18th March 1804, the king of Bantam was murdered by one of his grand nephews, who had concealed himself under his bed, and who was afterwards discovered and put to death. An embassy was sent from Batavia, to elect and instal the new king in the name of the Dutch Company, part of which ceremony consists in having him weighed in a pair of scales at the palace gate, after having feasted for fifteen days. This deputation was composed of a counsellor of India, four senior merchants, a major, lieutenant, serjeant, two corporals, eighteen French and eighteen Dutch grenadiers. The external forms occupied fifteen days; at the end of which time, or soon after their return, the whole of the European grenadiers and subalterns died, except two or three of the French who escaped. The counsellor, his wife who had accompanied him, the major and four merchants, all returned with putrid fevers, which brought them to the brink of the grave, and the secretary died. In 1811, after the conquest of Batavia, the town and district of Bantam surrendered to the British arms without resistance. Bantam was restored to the Dutch by the peace of 1814. Long. 106° 31′ E., lat. 6° 14′ S.

BANTAM, or dwarf cock, in zoology, a well known variety of the species phasianus gallus. See PHASIANUS.

BANTAM WORK, a kind of painted or carved work, resembling that of Japan, only more gaudy. Some are flat, lying even with the black, and others highly embossed, as we find in many large screens. The Japan artists work chiefly in gold and other metals; and those of Bantam generally in colors, with a small sprinkling of gold here and there: for the flat Bantam work is done in colors mixed with gum-water, proper for the thing designed to be imitated.

BAN'TER, *v.* & *n.* } The derivation unknown.
BAN'TERER, } Perhaps from *badiner*, Fr.
BAN'TERING. } It signifies to mock with ridicule. A lighter kind of raillery. Playing upon the fretfulness of the testy, the simplicity of the ignorant, the self-importance of the proud, and the conceitedness of the vain. It is sometimes employed against the infirmities of the good and the virtuous. A species of humor that is more allied to malignity than kindness, and which sometimes meets with its reward.

'Tis thus, malicious deity,
That thou hast *banter'd* wretched me;
Thus made me vainly lose my time,
Thus fool away my youthful prime.
Walsh. On loving one I never saw.

The magistrate took it that he *bantered* him, and bade an officer take him into custody. *L'Estrange.*

It is no new thing for innocent simplicity to be the subject of *bantering* drolls. *Id.*

This humour, let it look never so silly, as it passes many times for frolic and *banter*, is one of the most pernicious snares in human life. *Id.*

What opinion have these religious *banterers* of the divine power? Or what have they to say for their mockery and contempt? *Id.*

And the grave affairs of state have been treated with an air of irony and *banter*. *Shaftesbury.*

Could Alcinous' guests withhold
From scorn or rage? Shall we, cries one, permit
His lewd romances, and his *bant'ring* wit? *Tate.*

Metaphysicks are so necessary to a distinct conception, solid judgment, and just reasoning on many subjects, that those who ridicule it, will be supposed to make their wit and *banter* a refuge and excuse for their own laziness. *Watts.*

BANTIUS (L), a spirited youth of Nola, whom Hannibal found almost dead among those who had fallen in the battle of Cannæ. Having been kindly treated, and sent home with great generosity, he took it into his head to betray his country to such a humane enemy; but Marcellus, the Roman general, being informed of it, reprimanded Bantius, and he afterwards continued steady in the Roman interest.

BANTLING, *n. s.* If it has any etymology, it is perhaps corrupted from the old word *bairn*, *bairnling*, a little child. A low word; so says Johnson. But it is usually applied to a child born, or at least begotten, before marriage.

If the object of their love
Chance by Lucina's aid to prove,
They seldom let the *bantling* roar
In basket at a neighbour's door. *Prior.*

BANTRY BAY, called also BEERHAVEN, a capacious bay of Ireland, on the coast of Cork, capable of containing all the shipping of Europe. It is twenty-six miles long, three broad, and forty fathoms deep in the middle, where are two small islands, Bear and Whiddy. Coral is

dredged from the bottom of the bay, and used as manure in the neighbourhood. Fish were formerly very plentiful here; but of late the business has declined. In May, 1689, a French fleet, which had brought succours of arms, ammunition, and money, to the adherents of king James, was attacked in this bay by Admiral Herbert; and in December, 1796, another French fleet, consisting of seven sail of the line, two frigates armed en flute, and seventeen transports, anchored here for a few days, and landed an officer and eight men in a boat, who were taken prisoners.

BANTRY, a large barren barony of Ireland, in the county of Cork.

BANTRY, a sea-port town of Ireland, in the county of Cork, and province of Munster, seated on the bay, about thirty miles west of Cork, and 164 south-west of Dublin.

BANYAN TREE, in botany, a name sometimes given to the ficus Indica.

BANYOUWANGY, a Dutch settlement of Java, containing the residence of a native chief. The Dutch garrison the fort to protect themselves and commerce from the numerous pirates of the straits of Bali.

BANZA, a town of Congo Proper, on the river Zaire.

BAOBAB, the name given by Prosper Albinus to the African calabash. See ADANSONIA. This is the largest vegetable production known: although the trunk is not above twelve or fifteen feet high, it is from sixty to eighty-five feet round, and the lower branches extend almost horizontally about sixty feet. Their own weight bending these extremities to the ground, they form an hemispherical mass of verdure about 120, and sometimes 150, feet in diameter. The flowers of this plant are in proportion to the size of the tree, and are followed by a fruit pointed at both ends, about ten inches long and five or six broad, covered with a kind of green down, under which is a hard, black, radiated, rind. The fruit hangs to the tree by a pedicle two feet long. It contains a whitish, spongy, juicy, substance of an acid taste, and seeds of a brown color, of the shape of a kidney bean, which are called goui When dry, the pulp by which the seeds are surrounded, is powdered, and brought into Europe under the name of terra sigillata lemnia. The kernel contains a large proportion of alkali, when burnt, and the negroes mix it with palm oil to make soap. The bark is called lalo; the negroes dry and powder it; after which it is preserved in little cotton bags, and two or three pinches are put into their food: it is mucilaginous and supposed to check perspiration. This tree is a native of the west coast of Africa, from the Niger to the kingdom of Benin.

BAOL, a small kingdom of western Africa, between the Senegal and Gambia. It lies south of Cayor, by which it has recently been conquered. It has a capital of the same name.

BAPAUME, a strong town of France, in the ci-devant French Netherlands, now included in the department of the Straits of Calais. Fine thread and lawn are made here. De Ville and Vauban fortified it in 1641, and France obtained the cession of it in 1659. Situate eighteen miles south-east of Arras.

BAPHE, in the writings of the ancients, a word used to express that fine red color with which they illuminated the capital letters in manuscripts, at the beginning of chapters. It is also called by some encaustum sacra, and by others coccus and cinnabaris. It was a very elegant color, and said to have been prepared of the purple taken from the murex, and some other ingredients. It was called encaustum, from its resembling the fine bright red used in enamels.

BAPTÆ, in antiquity, an effeminate voluptuous kind of priests of the goddess Cotytto, at Athens; so called from their stated dippings and washings, by way of purification; their rites were performed in the night, and consisted chiefly of lascivious dances. Eupolis having composed a comedy to expose them, entitled βαπτος, they threw him into the sea, to be revenged; and the same fate is also said to have befallen Cratinus, another Athenian poet, who had written a comedy against the Baptæ, under the same title. Others deduce the denomination Baptæ from the practice of dyeing and painting their bodies, especially their eyebrows, and officiating at the service of their deity, with the parade and demureness of women. Juvenal describes them in this light. Stat. ii. ver. 91.

BAPTES, in natural history, a name given by the ancients to a fossile substance used in medicine; they have left us but very short descriptions of it. Pliny only tells us, that it was soft and of an agreeable smell. Hence Agricola judges, that it was probably one of the bitumens.

BAPTISECULA, in botany, a name given by some authors to the blue corn-flower, called the cyanus or blue-bottle.

BAPTISIA, in botany, a genus of plants, class, decandria; order, monogynia. The generic character is: CAL. semi four-fivefid, bilabiate: COR. papilionaceous, petals nearly equal in length: VEXILLUM reflected laterally: STAM. deciduous; legume ventricose, pedicellate, many-seeded.—Hort. Kew. It is a genus closely allied to podalyria, and containing four species.

BAPTISM.

BAP'TISM, BAP'TIZE, *v.* BAPTI'ZER, *n.* BAP'TISMAL, BAPT'IST, BAP'TISTERY, BAPTIST'ICAL, BAPTI'ZATION. } Derived from the Gr. *βαπτω* and *βαπτιζω*. The primary meaning is to dip, to plunge, to immerge. Protestant Christians use it strictly in its primary sense, or with greater latitude of meaning, according to their respective tenets, on the subject of the rite of baptism, as an ordinance of Christianity. It is sometimes employed figuratively, to express overwhelming sorrows; the covering of the earth by the dews of heaven; and the sacred influences of the spirit of God in cleansing the heart.

I have a *baptism* to be *baptized* with, and how am I straitened till it be accomplished. *Luke.*

Certes, if he be *baptised* without penitence of his old gilt, he receiveth the mark of *baptisme*, but not the grace, ne the remission of his sinnes, til he have veray repentance. *Chaucer. The Persones Tale.*

Speak, my Lord;
And we will hear, note, and believe in heart,
That what you speak is in your conscience wash'd
As pure as sin with *baptism*. *Shakspeare.*

His *baptisme* gives virtue to ours. His last action (or rather passion) was his *baptizing* with blood; his first was his *baptization* with water: both of them wash the world from their sins.
Hall's Contemplations.

Baptism is given by water, and that prescript form of words which the church of Christ doth use.
Hooker.

He to them shall leave in charge,
To teach all nations what of him they learn'd,
And his salvation; them who shall believe,
Baptizing in the profluent stream, the sign
Of washing them from guilt of sin to life,
Pure, and in mind prepar'd, if so befal,
For death, like that which the Redeemer died.
Milton.

Let us reflect that we are Christians: that we are called by the name of the Son of God, and *baptized* into an irreconcileable enmity with sin, the world, and the devil. *Rogers.*

The sacrament of *baptism* was supposed to contain a full and absolute expiation of sin; and the soul was instantly restored to its original purity, and entitled to the promise of eternal salvation. *Gibbon.*

Philosophy, *baptiz'd*
In the pure fountain of eternal love,
Has eyes, indeed; and, viewing all she sees
As meant to indicate a God to man,
Gives him his praise, and forfeits not her own.
Cowper's Task.

Pass not unblest the genius of the place!
If through the air, a zephyr more serene,
Winnow the brow, 'tis his; and if ye trace
Along his margin a more eloquent green,
If on the heart the freshness of the scene
Sprinkle its coolness, and from the dry dust
Of weary life a moment lave it clean
With nature's *baptism*,—'tis to him ye must
Pay orisons for this suspension of disgust.
Byron. Childe Harold.

BAPTISM has been defined, a New Testament ordinance, appointed by our Lord Jesus Christ, the first or initiatory sacrament of the Gospel dispensation, whereby its subjects are admitted as visible members of that spiritual society of believers, which is scripturally denominated the 'Church of Christ,' and entitled to all the privileges of church communion. The derivation of the word is from the Greek *βαπτιζω*, which literally signifies dipping or immersion, but is often used in a lower sense to express the legal ablutions and washings of the ceremonial law. See Heb. ix. 10. and Mark vii. 8. Baptism is denominated or described by various ecclesiastical writers, in other ways; it is sometimes called palingenesia, the laver of regeneration, salus, salvation; *σφραγις*, signaculum Domini, or signaculum fidei, the seal of faith; mysterium, mystery; sacramentum fidei, the sacrament of faith, &c. Sometimes it was called viaticum, from its being administered to departing persons; sometimes sacerdotium laici, the lay priesthood, because allowed in cases of necessity to be conferred by laymen; sometimes the great circumcision, because it succeeded in the room of circumcision, and was to be a seal of the Christian covenant, as that was the seal of the covenant made with Abraham. As it had Christ for its author, it was anciently styled *Δωρον* and *χαρισμα Κυριου*, the gift of the Lord; sometimes simply *δωρον*, by way of eminence. And as it made men members of the church, it had the title of Τελειωσις, and Τελειη, the consecration, and consummation; because it gave men the perfection of Christians, and a right to partake of the Το Τελειον, which was the Lord's Supper. It was also entitled *μυησις* and *μυσαγογια*, the initiation, as it admitted men to all the sacred rites of the Christian religion.

Purification by water seems so natural an emblem to express mental purification, that the use of it has prevailed amongst nations who were never enlightened by revelation; water was used in the religious ceremonies both of the Egyptians and Greeks; and Grotius is of opinion that it originated at the time of the deluge. According to Clemens, Alexandrinus, and Tertullian, purification, by water, was the first ceremony performed at initiation into the Eleusinian mysteries, which were derived from Egypt; and Hesychius renders the word *υδρανος*, or the waterer, by *ο αγνιστης των* Ελευσινιων, the priest whose office at the Eleusinian mysteries was that of purifying.

The Jews are said by many writers, to have used Baptism together with circumcision and sacrifice in the admission of male proselytes: all these ceremonies, according to the same authors, having been observed in their own admission into covenant with the Deity at Sinai, when they washed their clothes, and sanctified themselves. See Exod. xix. 10.—14. The female proselyte was admitted by baptism and sacrifice, and in cases where the proselyte had children, they both circumcised and baptised, or baptised them only, according to their sex. The baptism of a proselyte was what they called metonymically his regeneration, or 'new birth.'

The connexion, or rather the similitude between Jewish and Christian baptism has been thus exhibited by Dr. Wall's celebrated treatise upon the latter institution.

1. The Jews required of proselytes a renunciation of idolatry, and to believe in Jehovah.	1. The Christians required to renounce the devil, and all his works, and to believe in the Trinity.
2. The Jews interrogated the proselyte while standing in the water.	2. The Christians put interrogatories as the catechumen was about to enter the water, when he had before answered in the congregation.
3. The Jews baptised the infant children of proselytes.	3. The Christians baptised infants.
4. The Jews required for an infant proselyte that either his father, or the church of the place, or three grave persons should answer for the child.	4. The Christians observed a similar custom.
5. A Jewish proselyte was said to be born again, when baptised.	5. Our Saviour and the Apostles call baptism regeneration, or being born again.
6. The Jews told the proselyte that he was now clean and holy.	6. The same term is used in the New Testament: the baptised Christians are called the saints, the holy, the sanctified—sanctified with the washing of water.
7. The Jews declared the baptised to be under the wings of the Divine Majesty, or Shechinah.	7. Among Christians this was shown by the gifts of the Holy Ghost: to this end the laying on of hands was used, a custom, probably taken from the Jewish church.
8. At the paschal season, the Jews baptised proselytes, that they might eat the passover.	8. The Christians at Easter administered baptism in a solemn manner.
9. The Jews had their proselytes of the gate.	9. The Christians had their catechumens, or competentes.

The above statements are ingeniously drawn from the writings of Maimonides and the Babylonian Talmud, which was completed at the close of the fifth century, and of course affords an historical testimony of facts existing and believed in at that time. Spencer, who is fond of deriving the rites of the Jewish religion from the ceremonies of the Pagans, lays it down as a probable supposition, that the Jews received the baptism of proselytes from the neighbouring nations, who were wont to prepare candidates for the more sacred functions of their religion by a solemn ablution; that, by this affinity of sacred rites, they might draw the Gentiles to embrace their religion, and that the proselytes (in gaining of whom they were extremely diligent) might the more easily comply with the transition from Gentilism to Judaism. In confirmation of this opinion he observes, first, that there is no divine precept for the baptism of proselytes, God having enjoined only the rite of circumcision for the admission of strangers into the Jewish religion. Secondly, that, among foreign nations, the Egyptians, Persians, Greeks, Romans, and others, it was customary that those who were to be initiated into their mysteries, or sacred rites, should be first purified by dipping their whole body in water. That learned writer adds, as a farther confirmation of his opinion, that the cup of blessing likewise, added to the paschal supper, seems plainly to have been derived from a pagan original: for the Greeks, at their feasts, had one cup, called ποτηριον αγαφου δαιμονος, the cup of the good demon or god, which they drank at the conclusion of their entertainment, when the table was removed. Since, then, a rite of Gentile origin was added to one of the Jewish sacraments, viz. the passover, there can be no absurdity in supposing, that baptism, which was added to the other sacrament, namely, circumcision, might be derived from the same source. In the last place, he observes, that Christ, in the institution of his sacraments, paid a peculiar regard to those rites which were borrowed from the Gentiles; for, rejecting circumcision and the paschal supper, he adopted into his religion baptism and the sacred cup; thus preparing the way for the conversion and reception of the Gentiles into his church.

Some able critics, however, who oppose the general conclusions of the Baptists upon this subject, agree with them in discarding these alleged proofs of the connexion between the Christian institute and Jewish proselyte baptism. The learned Owen says:—'The opinion of some learned men, about the transferring of a Jewish baptismal rite (which, in reality, did not then exist), by the Lord Jesus for the use of his disciples, is destitute of all probability.' And in his exercitations on the epistle to the Hebrews, Exercitat. xiv. 'From this latter temporary institution (the washing of their clothes commanded upon the Israelites at Sinai) such as they had many granted to them in the wilderness, before the giving of the law, the Rabbins have formed a baptism for those that enter into their synagogue; a fancy too greedily embraced by some Christian writers, who would have the holy ordinance of the Church's baptism to be derived from thence. But this washing of their clothes, not of their bodies, was temporary, never repeated; neither is there any thing of any such baptism or washing required in any proselyte, either man or woman, where the laws of their admission are strictly laid down. Nor are there the least footsteps of any such usage among the Jews until after the days of John the Baptist, of whom it was first taken up by some antemishnical Rabbins.' Jennings, in his Jewish Antiquities, (vol. I. p. 134, 8.) a work recommended by the bishop of Lincoln, and placed in the first class of those which every clergyman ought to possess; says it is more likely the Jews took the hint of proselyte-baptism from the

Christians after our Saviour's time, than that he borrowed his baptism from their's; which, whenever it came into practice, was one of those additions to the law of God, which he severely censures. There wants more evidence of its being as ancient as our Saviour's time, than I apprehend can be produced, to ground any argument upon it in relation to Christian baptism. We therefore dismiss this form of the admission of proselytes, as uncertain.' And Dr. Lardner, works, vol. V. p. 501, 2.: 'I pay no regard to what the later Jewish Rabbins say of the method of initiating proselytes, by circumcision, baptism, and sacrifice; who have made void not only the moral (with which our Lord often charged them, as Matth. xv. 1—9, Mark vii. 1—13, and other places), but also the ritual part of the law of God. Indeed, they had corrupted the Mosaic ritual by numberless additions, before the coming of our Saviour. As appears from the text of St. Mark just referred to. Nor have they ceased to do the like since.

'I think, as before said, that women were first baptised under the evangelical dispensation. I am also of opinion, that our blessed Lord's forerunner first made use of baptism as an initiating ordinance; and therefore he was called the Baptist, O Βαπτιστης. Matth. iii. 1, and in many other places. Nor am I singular in this opinion.'

From this alleged Jewish ordinance, as Jennings has observed, some sects infer, that under the Christian dispensation baptism is only to be administered to converts from Judaism, Mahommedanism, paganism, or some other religion, and to their descendants born before their conversion and baptism, but to none born after. Mr. Emlyn, in particular, (Previous Question to several Questions, or Valid and Invalid Baptism), insists upon this argument against the constant and universal obligation of infant baptism. And the Society of Friends ground on this their principal argument for rejecting baptism with water as a 'carnal washing.' See Mr. Gurney's late defence of the 'Peculiarities of Friends,' p. 67, &c.

The baptism of John naturally presses upon our consideration at the commencement of every inquiry upon this subject. Its divine original is expressly taught, John 1 and 33, and its object was to prepare the way for the Messiah by calling a general attention to him and preaching the necessity of repentance. The Jews seem to have expected a general baptism at the coming of the Messiah, and accordingly express little surprise at the fact of the baptism itself, but rather question the authority of John to administer it. 'Why baptisest thou then if thou be not Christ, neither Elias, nor the prophet?' John uniformly bore testimony to the more glorious person and office of the Messiah; 'I indeed,' said he, 'baptise you with water; but there standeth one among you whom ye know not, he shall baptise you with the Holy Ghost and with fire:' and, agreeably to the nature of his mission, he taught them that his baptism was of no more force after the entrance of the latter upon his public ministry; 'He must increase, but I must decrease;' 'I know him not but that he should be made manifest to Israel; therefore am I come baptising with water;' and the whole of his ministry received a perfect accomplishment, when, amidst the admiring multitudes, assembled on occasion of his baptising his great successor, there came a voice from heaven, saying, 'this is my beloved son, in whom I am well pleased, hear ye him.' The cause of Christian baptism has frequently been advocated, and, as some have thought, illustrated, from the baptism of John; but John, according to the scriptures, is to be considered as a member of the Old Testament church, agreeably to our Lord's language, 'the least in the kingdom of heaven is greater than he.' The nature and obligation of baptism, as a Christian ordinance, is to be placed on different and on better grounds.

1. The first thing to be considered is the original institution of this sacrament by our Lord himself, as a means of admission into his church. He gave the universal commission to the disciples after his resurrection from the dead, 'Go ye and teach all nations, baptising them in the name of the Father, and of the Son, and of the Holy Ghost. He that believeth and is baptised shall be saved, he that believeth not shall be damned,' Mark, xvi, 15, 16. As a sacrament of initiation, baptism, according to the majority of writers on this subject, corresponds with circumcision in the Jewish establishment, being the badge of distinction between the church and the world. The analogy between these two ordinances appeared so forcible to the church in the time of St. Cyprian, that his opinion was requested upon the point, whether baptism ought not to be delayed till the eighth day after the birth of a child, in order that the resemblance between the Jewish and Christian sacraments might be more perfectly exhibited. Gregory Nazianzen was an advocate for the eighth day. Circumcision has been considered, from a very remote period, as a type of baptism, and those arguments in behalf of infant baptism have been deemed valid, which are drawn from the practice of circumcision under the ceremonial law. St. Paul himself appears to teach the analogy of the two ordinances in the following language, found in Col. ii. 11. 'In whom ye are circumcised with the circumcision made without hands, in putting off the body of the sins of the flesh by the circumcision of Christ (or Christian baptism), buried with him in baptism.'

That baptism must be received by all believers, is evident from the very language of the original institute, 'he that believeth and is baptised shall be saved,' and so strongly did the early fathers feel the necessity of it, that they frequently expressed their doubts as to the safety of infants who died in an unbaptised state. Whether it be possible for a man to be saved in an unbaptised condition the church of England nowhere decides; but the scriptures have been thought to lean to the side of absolute necessity, in our Lord's words to Nicodemus, John, iii, 5, 'Verily, verily, I say unto thee, except a man be born again of water and of the spirit, he cannot enter into the kingdom of God.' The fathers generally supposed this intended to express the absolute necessity of baptism: the former part of the verse evidently alluding to the outward form

of administration by water; the latter, to the subsistance of an inward grace by the spirit of God; constituting, in reality, that regeneration of the mind of which the outward regenerative rite is an imperfect representation. Hooker's language upon the necessity of the exterior ordinance is, 'If Christ himself, which giveth salvation, do require baptism it is not for us, that look for salvation, to sound and examine him whether unbaptised men may be saved, but seriously to do what is required, and religiously to fear the danger which may grow by the want thereof.'

2. The second thing worthy of consideration is the proper subjects to whom baptism may be administered.

The church of England admits, equally, to the sacrament persons of both sexes, adults or children. Considerable opposition of opinion, nevertheless, prevails at present, with respect to the validity of infant baptism and its benefits; for an historical sketch of the ceremony, see PÆDOBAPTIST. It may be sufficient to our present enquiry to observe, that there is no church in the world, the Baptist excepted, that does not admit of infant baptism, and that the question was never agitated upon any considerable scale until the period of the reformation. The service found in the Common Prayer for the baptism of such as are of riper years, was added at the review on the restoration of Charles II. in consequence of the growth of Anabaptists, who had become so numerous in the preceding century, that it was necessary to have a form fitted for their service.

CLINICAL BAPTISM, which was used in the first centuries of the christian era, was baptism administered to a person on his death-bed; of which custom, mention is made by Cyprian and Eusebius, by Epiphanius in Heres. Cerinth, and by other writers of the fourth and fifth centuries. In a case where a heathen in his last sickness, was converted to the Christian religion, such a baptism became necessary. But, in consequence of the superstitious notion that baptism alone washed away all the sins of the past life, many persons delayed the consideration of Christianity till their last moments, intending just at that crisis to make use of baptism, and thus die in the hope of heaven. Gregory Nyssen, Chrysostom, Nazianzen, and other fathers of the church, inveighed against this delusion in the most powerful language. The two most remarkable instances of the superstition alluded to, are found in the emperor Constantine and his son Constantius, who were both baptised on their death-beds. But, since in all cases the sincerity of death-bed religion is, to say the least, doubtful, it was decreed by the council of Neocesarea, A. D. 350, and of Laodicea, 363, that no clinic should ever be admitted to the order of presbyter.

3. The third enquiry on this subject respects the persons in whom is vested the office of administering this sacrament. The right of baptising has generally been committed to the clergy of all communions. It belongs to bishops and presbyters as a part of their office, although, from the example of Philip, it appears that deacons have a divine authority for performing it, perhaps equal to either of the two former. In our established church deacons are empowered to baptise only in the absence of the priest, a limitation which is intended out of respect to the higher orders of the clergy. Different opinions appear to have been held by the fathers upon the subject of lay-baptism. Tertullian admits laymen to administer it in cases of urgent necessity: the same sentiment was expressed by St. Jerome, and by the council of Eliberis, A. D. 305. Calvin also confesses the antiquity of the opinion.—Inst. l. iv. c. xv. sec. 20. Basil however held the contrary notion, and the apostolic, Const. c. x. l. iv., forbids laymen to baptise. It is however one thing to dispute the right of a layman to baptise, and another thing to deny the spiritual validity of a sacrament so administered, especially since several of the ancient fathers allowed the validity of the ordinance even when administered by women. Baptism by laymen is at present unknown in our national church, it may nevertheless be interesting to our readers to notice some of the ancient canons upon the subject made in England by the Pope's delegates, during the thirteenth century. In the constitution of Edmund, archbishop of Canterbury, A. D. 1236, 26 Hen. III., there is this direction:—'Item interroget sacerdos laicum diligentur, cùm in necessitate baptizaveret puerum; quid dixerit, etiam, quid fecerit. Et si diligenti præcedente inquisitione factâ sibi fide plenâ, invenirit laicum distinctè et in formâ ecclesiæ baptizásse, sive in Latino, sive in Gallico, sive in Anglico, approbet factum. Si verò baptizatus fuerit puer a laico, precedentia et subsequentia mersionem expleantur vel suppleantur à sacerdote.' 'When a layman has, upon urgent necessity, baptised a child, the priest shall enquire diligently with what words and acts it was performed, and if upon diligent enquiry he find, and is well persuaded, that the layman did distinctly, and according to the forms of the church, whether in Latin, French, or English, baptise the child, he shall confirm the proceeding: but in this case the rites preceding and following the immersion shall be supplied by a priest.' By another constitution of the same archbishop, order was given, that in cases of child-birth the attendants should have water ready at hand to baptise the child if necessity required. The legantine constitutions of Otho the year following gave order that laymen should be instructed how to baptize; which was again enforced by the constitution of Otobon, another legate, in 1260. It would perhaps, under all circumstances, be difficult to decide the point, whether this earnest solicitude to prevent any child dying unbaptised was the effect of a deplorable superstition, or a profound policy on the part of the clergy, but evidently the compliance arose from ignorance on the part of the people. It is also certain, that in consequence of these institutions baptism became very prevalent, for we find a constitution of archbishop Peccham, in a provincial synod held at Reading in 1279, enjoining that baptism by laymen should not be repeated; and, in cases where it appeared doubtful, whether the child had been baptised or not that the form should be used, which is also preserved in our liturgy. 'If thou art not already baptised, I baptise thee &c.' In the liturgy of Edward VI. there is internal evidence that the

form of private baptism was intended for the use of the laity, as well as the clergy, at least in cases of extreme danger. In the articles drawn up by the convocation, A.D. 1575, the twelfth takes notice of a doubt which had frequently arisen; namely, whether the form of private baptism might be administered by laymen or no. The convocation decided in the negative; but this article, though existing in the MS., was never printed, and the question still remained till the conference at Hampton Court, which took place in the first year of the reign of James I., when the form itself was so altered as to exclude lay baptism altogether. Upon the whole, then, it appears 'that lay baptism is now excluded from the church of England, there existing no necessity for it, but that the church does not say that lay baptism is no baptism.'

4. The fourth enquiry is, what facts go to constitute baptism. These, with reference to the outward administration of it, are two; namely, the application of water, and the using of the original words of institution—'I baptise thee in the name of the Father, and of the Son, and of the Holy Ghost.'

The Baptists consider that it is an essential part of baptism that the subject should be applied to the water and immersed in it, for which reason many of them abstain from Christian communion with members of other churches, considering them as unbaptised persons. It is certain that the literal meaning of the word baptism is immersion, which is further confirmed by the practice of the ancient church; but whether immersion be essential to the constitution of the ordinance, is in our opinion a separate enquiry. The practice of sprinkling in some cases was adopted, and even justified by all the parties, as in the baptism of sick persons and weak children. It follows that baptism is valid where immersion is not used, and therefore that immersion is no essential part of it; besides which, there is a strong probability that in the baptism of the jailor, Acts xvi. 33, immersion was not resorted to. With respect to the practice of our established church, dipping appears to have been the regular and established mode, and was general at the Reformation; but, in 1644, when the Presbyterians had the ascendancy, the original practice of the church began to decline, and, after several centuries had elapsed, the present mode became universal. It contributed not a little to the cause of sprinkling, that during the bloody reign of queen Mary, many of our Protestant divines, flying into Germany and Switzerland, and returning when queen Elizabeth came to the crown, brought back with them a great zeal for the protestant churches beyond sea, where they had been sheltered and received; and having observed, that at Geneva and some other places, baptism was administered by sprinkling, they introduced the same practice into the churches of England.

The next point essential to a valid baptism, is that it be administered 'in the name of the Father, and of the Son, and of the Holy Ghost.' A baptism not thus administered, or administered without water, the church of England considers no baptism, and would insist on a proper submission to the sacrament. But sundry passages occur in the new testament which relate to the administering of baptism in the name of Christ alone, as Acts ii. 38; viii. 16; xx. 48; xix. 5; Rom. vi. 3; Gal. iii. 27; accordingly in St. Basil's time, the question was agitated, and some contended that baptism ought to be thus administered. But being baptised in the name of Christ implies being baptised 'in the name of the Father, &c.' because these were points in which all catechumens were instructed, and in which every baptised Christian was supposed to be established.

The following illustration of this subject, taken from Dr. Lightfoot's Harmony of the New Testament, Acts ii., is worthy the attention of the reader. 'Three thousand converted are baptised in the name of the Lord Jesus,' verse 38, which no whit disagreeth from the command, 'Baptise in the name of the Father, and of the Son, &c. Matt. xxviii. 19. For the form of baptism in these first days of the gospel, of which the New Testament giveth the story, may be considered under a threefold condition. 1. John the Baptist baptised in the name of Messias, or Christ that was then ready to come, but that Jesus of Nazareth was he, he himself knew not till he had run a good part of his course, John, i. 31, 32. The disciples baptising the Jews, baptised them in the name of Jesus, upon this reason, because the great point of controversy then in the nation about Messias was, whether Jesus of Nazareth were he or no. All the nations acknowledged a Messias, but the most of them abominated that Jesus of Nazareth should be thought to be he, therefore those that by the preaching of the gospel came to acknowledge him to be Messias, were now baptised in his name as the critical badge of their embracing the true Messias. But 3d, where the question was not on foot, they baptised in the name of the Father, and of the Son, and of the Holy Ghost. And so that baptising in the name of Jesus was for a season for the settling of the evidence of his being Messias, and when that was thoroughly established, then it was used no more; but baptism was in the name of the Father, and of the Son, &c. Of the same cognizance were those extraordinary gifts of the spirit evidences of Jesus his being the Messias, and means of conveying the gospel through the world, and when both these were well established, then those gifts ceased for ever.' See also his sermon on Matt. xxviii. 19, where it is proved that John baptized in the name of Messias now coming.

According to the general sentiment among Christians this sacrament can be received but once, thus expressed in the Nicene creed, 'I believe in one baptism for the remission of sins.' The cases mentioned in ecclesiastical history to the contrary, are derived from the re-baptising of persons who had been baptised by heretics, the validity of which the orthodox, or party baptising, denied and said that it was no baptism. The subject was therefore in those cases considered as an unbaptised person.

5. Our next object will be to illustrate the time, place, and manner of baptism. In the earliest ages of the church, there was no stated time or place for the reception of baptism. After-

wards Easter, Whitsuntide, and Epiphany, became solemn seasons, out of which baptism was not administered, except in cases of necessity. The catechumens, who were to receive it at these times, were called competentes; and to these it is that St. Cyril addresses his catechises. In the apostolical age, and some time after, before churches and baptisteries were generally erected, they baptised in any place where they had convenience; as John baptised in Jordan, and Philip baptised the eunuch in the wilderness, and Paul the jailor, in his own house. But in after ages, baptisteries were built adjoining to the church; and then rules were made, that baptism should ordinarily be administered nowhere but in those buildings. Justinian refers to ancient laws, appointing that none of the sacred mysteries of the church should be celebrated in private houses. Men might have private oratories for prayer in their own houses; but they were not to administer baptism or the eucharist in them, unless by a particular license from the bishop of the place. Such baptisms were frequently condemned in the ancient councils, under the name παραβαπτισματα, baptisms in private conventicles. As to the attendant ceremonies and manner of baptism in the ancient church: The person to be baptised, if an adult, was first examined by the bishop or officiating priest, who put some questions to him; as, first, Whether he abjured the devil and all his works? secondly, Whether he gave a firm assent to all the articles of the Christian faith? to both which he answered in the affirmative. If the person to be baptised was an infant, he answered by his sponsors or godfathers. After the questions and answers followed the exorcism: The minister laid his hands on the person's head, and breathed in his face, to expel the devil from him, and prepare him for baptism, by which the holy spirit was to be conferred upon him. After exorcism, the minister, by prayer, consecrated the water. The person was then baptised 'in the name of the Father, and of the Son, and of the Holy Ghost.' In performing the ceremony, the usual custom (except in clinical cases, or where there was scarcity of water), was to immerse and dip the whole body. Thus St. Barnabas, describing a baptised person, says, 'We go down into the water full of sin and filth, but we ascend bearing fruit in our hearts.' And this practice was so general that we find no exceptions made in respect either to the tenderness of infants, or the bashfulness of the other sex, unless in case of sickness or other disability. But to prevent any indecency, men and women were baptised apart; and either the baptisteries were divided into two apartments, one for the men, the other for the women, as Bingham has observed; or the men were baptised at one time, and the women at another, as is shown by Vossius, from the Ordo Romanus, Gregory's Sacramentarium, &c. There was also an order of deaconesses, one part of whose business was to assist at the baptism of women. These precautions, however, rather indicate a scrupulous attention to delicacy, than imply any indecency in the circumstance of immersion itself. From the candidates being immersed, there is no reason to infer that they were naked: The present baptists never baptise naked, though they always immerse. After immersion, followed the unction; by which (says St. Cyril) was signified, that they were now cut off from the wild olive, and were ingrafted into Christ, the true vine; or else to show that they were now to be champions for the gospel, and were anointed thereto, as the old athletæ were against their solemn games. With the anointing was joined the sign of the cross, made upon the forehead of the person baptised; which being done, he had a white garment given him, to denote his being washed from the defilements of sin. From this custom the feast of Pentecost, which was one of the annual seasons of baptism, came to be called Whit-sunday, i. e. White Sunday. This garment was afterwards laid up in the church, that it might be an evidence against such persons as violated or denied that faith which they had owned in baptism. The person baptised was then, according to Justin Martyr, 'received into the number of the faithful, who sent up their public prayers to God, for all men, for themselves, and for those who had been baptised.'

The Form of Baptism in the church of Rome is as follows:—When a child is to be baptised, the persons who bring it, wait for the priest at the door of the church, who comes thither in his surplice and purple stole, attended by his clerks. He begins with questioning the godfather, whether they promise, in the child's name, to live and die in the true catholic and apostolic faith, and what name they would give the child. Then follows an exhortation to the sponsors: after which the priest calling the child by its name, asks it, What dost thou demand of the church? The godfather answers, eternal life. The priest goes on: If you are desirous of obtaining eternal life, keep God's commandments, thou shalt love the lord thy God, &c. After which he breathes three times in the child's face, saying, Come out of this child, thou evil spirit, and make room for the Holy Ghost! This said, he makes the sign of the cross on the child's forehead and breast, saying, Receive the sign of the cross on thy forehead, and in thy heart. Then taking off his cap, he repeats a short prayer; and laying his hand softly on the child's head, repeats a second prayer: which ended, he blesses some salt, and putting a little of it into the child's mouth, pronounces these words, Receive the salt of wisdom. All this is performed at the church door. The priest, with the godfathers and godmothers, coming into the church, and advancing towards the font, repeat the apostle's creed and the Lord's prayer. Being come to the font, the priest exorcises the evil spirit again; and taking a little of his own spittle, with the thumb of his right hand, rubs it on the child's ears and nostrils, repeating, as he touches the right ear, the same word (Ephatha be thou opened), which our Saviour made use of to the man born deaf and dumb. Lastly, they pull off its swaddling-clothes, or strip it below the shoulders, during which the priest prepares the oils, &c. The sponsors then hold the child directly over the font, observing to turn it due east and west: whereupon the priest asks the child, Whether he renounces the devil and all his works? and the godfather having answered in

the affirmative, the priest anoints the child between the shoulders in the form of a cross. Then taking some of the consecrated water, he pours part of it thrice on the child's head, at each perfusion calling on one of the persons of the Holy Trinity. The priest concludes the ceremony of baptism with an exhortation. The Romish church allows midwives, in cases of danger, to baptise a child before it is come entirely out of its mother's womb: where, it is to be observed, that some part of the body of the child must appear before it can be baptised, and that it is baptised on that part which first appears: if it be the head, it is not necessary to re-baptise the child; but if only a foot or hand appears, it is necessary to repeat baptism. A still-born child, thus baptised, may be buried in consecrated ground! The Greek church differs from the Romish, as to the rite of baptism, chiefly, in performing it by complete immersion.

Forms of Baptism in the Church of England. The forms of administering baptism among us being too well known to require a particular description, we shall only mention one or two of the more material differences between the form, as it stood in the liturgy of king Edward, and that in the English Common Prayer Book at present. The form of consecrating the water did not make a part of the office in king Edward's liturgy, as it does in the present, because the water in the font was changed, and consecrated but once a month. The form likewise itself was something different from that now used; and was introduced with a short prayer; that Jesus Christ, upon whom (when he was baptised), the Holy Ghost came down in the likeness of a dove, would send down the same Holy Spirit, to sanctify the fountain of baptism; which prayer was afterwards left out at the second review.—By king Edward's first book, the minister is to dip the child in the water thrice; 1st, dipping the right side; 2dly, the left; the 3d time, dipping the face toward the font. This trine immersion was a very ancient practice in the Christian church, and used in honor of the Holy Trinity; though some later writers say, it was done to represent the death, burial, and resurrection of Christ, together with his three days continuance in the grave. Afterwards, the Arians, persuading the people that it was used to denote that the three persons in the Trinity were three different substances, the orthodox left it off, and used only one single immersion. By the first common prayer of king Edward, after the child was baptised, the godfathers and godmothers were to lay their hands upon it, and the minister was to put on him the white vestment commonly called the chrysome, and to say, 'Take this white vesture, as a token of the innocency, which by God's grace, in the holy sacrament of baptism, is given unto thee; and for a sign, whereby thou art admonished, so long as thou livest, to give thyself to innocence of living, that after this transitory life thou mayest be partaker of the life everlasting. Amen.' And soon as he had pronounced these words, he was to anoint the infant on the head, saying, 'Almighty God, the father of our Lord Jesus Christ, who hath regenerated thee by water and the Holy Ghost, and hath given unto thee remission of all thy sins; may he vouchsafe to anoint thee with the unction of his Holy Spirit, and bring thee to the inheritance of everlasting life. Amen.' This was manifestly done in imitation of the practice of the primitive church.

The only human institutions connected with baptism in our established church, at present, are two, namely, sponsors and signing with the cross. Sponsors, or godfathers, called in ancient ecclesiastical writings, patrini, and ἀνάδοχοι, or susceptores, are mentioned as early as Tertullian. Cyril of Alexandria, A. D. 412, mentions the susceptor as saying Amen for the child baptised. It is also evident that in the second century there were attendants upon the children to be baptised, whose distinct office was to receive them from the priest, and who, it is highly probable, answered for them at the font; but that the practice was not used in the days of the apostles is evident, since it is not mentioned by Justin Martyr. The sign of the cross is a ceremony against which much censure has been levelled. It was used as early as the third century, and, although many efforts were made at the reformation to abolish it, has been carefully preserved.

Other customs, however, have by different churches, and in different ages, been introduced into the celebration of this sacrament, which are now totally disused, or retained only in the church of Rome. They may be enumerated in the following order: 1. Trine immersion, already alluded to, the practice of which commenced about the opening of the fourth century. Although prescribed in the English church by the prayer-book, 2 of Edward VI., this form was afterwards omitted. 2. Chrism, or unction, as mentioned by Tertullian, Cyprian, Cyril, and Chrysostom. It was performed with plain oil before baptism, and with unguent afterwards. 3. Tertullian mentions the practice of giving milk and honey to persons after baptism. This ceremony, which after a few centuries was discontinued, has been derived by some learned men from the Jewish customs at proselyte baptism. 4. Exorcism, or putting the baptised person upon his oath, and declaring to him his obligation to renounce sin, was used in the fourth century. This ceremony abounds with corruption in the church of Rome. 5. Candles lighted after baptism, and placed in the hands of the person baptised, as an emblem of the illumination of the spirit, was a ceremony used as early as the fourth century. 6. The chrisom, so called in the English church, was a white garment or surplice, put on immediately after baptism. 7. Easter and Pentecost were considered solemn times for the administration of baptism, as early as the second and third centuries. 8. Salt was not given to the baptised till the eighth century; nor, 9. The ears touched with spittle till the ninth.

6. Our sixth object will be to exhibit some of the most popular heresies which have prevailed at different periods respecting baptism. These arose chiefly in the second and three following centuries. 1. In the second century Marcion permitted women to baptise; affirmed that none but virgins, widows, or celibates, were fit subjects for baptism; and allowed baptism to be

repeated thrice. The Montanists baptised the dead. The Valentinians, instead of baptising in the name of the Father, &c. used a mystical form in the name of the Unknown Father of all things, in the Truth the Mother of all things, in him that came down on Jesus, in the union and redemption and communion of powers Instead of using water they poured a mixture of oil and water on the head, after which they anointed the persons so baptised. 2. In the third century arose the heresy of the Manichees, who affirmed that baptism by water was not necessary to salvation, and accordingly neglected it. 3. The fourth century was remarkable for the heresy of Arius, who baptised in the name of the Son only. 4. Pelagius, in the fifth century, affirmed that infants were baptised for other reasons, and not because of original sin.

7. Several laws have passed in different ages for enforcing and restricting baptism. In the ancient church, baptism was frequently conferred on Jews by violence; but the church never seems to have allowed of force on this occasion. By a canon of the fourth council of Toledo, it is expressly forbidden to baptise any against their wills. That which looks most like force in this case, allowed by law, were two orders of Justinian; one of which appoints the heathens, and the other Samaritans, to be baptised, with their wives and children and servants, under pain of confiscation. By the ancient laws, baptism was not to be conferred on image-makers, stage-players, gladiators, aurigæ or public drivers, magicians, or even strolling beggars, till they quitted such professions. Slaves were not allowed the privilege of baptism without the testimony and consent of their masters; excepting the slaves of Jews, heathens, and heretics, who were not only admitted to baptism, but, in consequence thereof, had their freedom. Vossius has a learned and elaborate work, De Baptismo, wherein he accurately discusses all the questions concerning baptism according to the doctrine of the ancients.

8. Baptism for the Dead was a sort of vicarious baptism, formerly in use, where a person dying without baptism, another was baptised in his stead. St. Chrysostom tells us, this was practised among the Marcionites with a great deal of ridiculous ceremony. After any catechumen was dead, they hid a living man under the bed of the deceased; then coming to the dead man, they asked him, whether he would receive baptism? and he making no answer, the other answered for him, and said, he would be baptised in his stead; and so they baptised the living for the dead. Epiphanius assures us, the like was also practised among the Corinthians. This practice they pretend to be founded on the apostle's authority; alleging that text for it, If the dead rise not at all, what shall they do who are baptised for the dead? This text, indeed, has given occasion to a great variety of different systems and explications. Bosius enumerates no less than nine different opinions among divines concerning the sense of the phrase. St. Ambrose and Walafred Strabo seem clearly of opinion, that the apostle had respect to such a custom then in being; and several moderns are of the same opinion, as Baronius, Jos. Scaliger, Justellus, and Grotius. But Bellarmin, Salmeron, Menochius, and several other Roman catholics, understand it of the baptism of tears, and penance, and prayers, which the living undergo for the dead; and thus allege it as a proof of the belief of purgatory in St. Paul's days. Some protestant divines read the passage, baptised into death; and illustrate it by the context; particularly the words 'being buried with Christ by baptism into death.' Paul, they say, is proving the resurrection by that of our Saviour, and the strength of his argument is, (1 Cor. xv. 16, 17, 29.) 'If Christ be not raised, and if the dead rise not, what shall they do who are baptised into his death?' This appears the most probable interpretation of the text.

Baptism of the Dead was a custom which anciently prevailed among some people in Africa. The third council of Carthage speaks of it as a thing that ignorant Christians were fond of. Gregory Nazianzen also takes notice of the same superstitious opinion prevailing among some who delayed to be baptised. In his address to this kind of men, he asks whether they staid to be baptised after death? Philastrius also notes it as the general error of the Montanists or Cataphrygians, that they baptised men after death. The practice seems to be grounded on a vain opinion, that, when men had neglected to receive baptism in their life-time, some compensation might be made for this omission by receiving it after death.

Baptism of Bells, a superstitious custom practised in the church of Rome, whereby the bell was supposed to be rendered capable of driving away tempests and devils. It is first taken notice of in the capitulars of Charles the Great. Baronius carries its antiquity no higher than the year 968, when the greatest bell of the church of Lateran was christened by pope John III. In 1581 it was complained of in the centum gravamina of the German nation, drawn up in the public diet at Nuremberg. In this ceremony the bell was provided with godfathers, who made responses, and gave it a name; after which they clothed it with a new garment, as Christians used to be clothed on coming out of the water.

Baptism, Fire, spoken of by St. John the the Baptist, has occasioned much conjecture Some of the fathers held that believers, before they enter paradise, are to pass through a certain fire, which is to purify them from all remaining pollutions. Others, with St. Basil, understood it of the fire of hell; others of that of tribulation and temptation. Others, with St. Chrysostom, will have it to denote an abundance of graces. Others suppose it to mean the descent of the Holy Ghost on the apostles, in the form of fiery tongues. Lastly, others maintain that the words 'with fire' are an interpolation. Some MS. copies of St. Matthew, indeed, want these words; but still they are to be found in St. Mark and St. Luke. The ancient Seleucians and Hermians, understanding it literally, maintained that material fire was necessary in the administration of baptism. But we do not find how, or to what part of the body, they applied it, or whether they were satisfied with obliging the

erson baptised to pass through the fire. Valenus, according to Tertullian, rebaptized all who ad received water baptism, and conferred on iem the baptism of fire. Heracleon, cited by lemens Alexandrinus, says that some applied a ıl hot iron to the ears of the person baptised, s if to impress some mark upon him! If many f the plainest texts of Scripture had not been isconstrued by ignorance, and darkened by navery, one would be surprised that ever this ext should have occasioned the smallest controersy. The context suggests one good interpreıtion. The Baptist spoke to a mixed multitude, ıany of whom were or would be believers, and ıany of whom never did believe the gospel. He ıerefore tells them that One, mightier than he, ıould baptise them (the one class) with the loly Ghost, and (the other) 'with fire;' that he ill thoroughly purge his floor and gather his heat into his garner; but he will burn up the haff, &c. Other passages of the New Testament peak of a 'fiery trial,' which is to try all faithful elievers, as no 'strange thing,' 1 Pet. iv. 12; and esus Christ, alluding to his own sufferings, asured his immediate followers 'that they should e baptised with the baptism wherewith he was aptised.' Probably therefore we unite the best nterpretations of the passage by considering it o refer to the baptism of the day of Pentecost iterally, and symbolically to the Christian's hare of afflictions in this suffering and vain orld.

BAPTISTS, a general name by which those Christians are distinguished who deny the validity f infant baptism, and restrict the administration f that sacrament to persons capable of believing nd understanding the religion into which they re thus initiated. They also maintain generally hat immersion is necessary to constitute a scripural baptism. Like all other denominations of Christians, they call in the evidence of antiquity; nd their pretensions, if founded on fact, as will e seen hereafter, are considerable. They affirm hat infant baptism was unknown before the third entury, was established in the fourth and fifth, nd prevailed generally till the Reformation; that ven in the dark ages some traces of pure bapism are discernible; that the ancient British hurch, before the arrival of St. Austin, did not aptise infants; that Bruno and Berengarius in he eleventh century, the Waldenses, the Lolards, and the Wickliffites, opposed infant bapism, together with William Sawtre, the first ollard martyr in England, who was burnt A. D. 401, in the reign of Henry IV. This is certain, vith respect to their antiquity, that at an early eriod of the Reformation disputations were held t Zurich, Bale, and Berne, upon infant baptism.

To the class of Baptists belong the ancient Noatians, Cataphrygians, the Donatists, the Anaaptists and Mennonites of Germany, and others, who, though they differed widely in their opinions pon other subjects, held the same general views vith respect to the initiatory sacrament.

Although the term Anabaptist has been promiscuously used as a general name by which to distinguish Baptists or re-baptisers, still we must distinguish between the Baptists in general and the Anabaptists of Germany, for which see article ANABAPTIST. It would be equally uncandid and unjust to confound, with the latter enthusiasts, so respectable and consistent a body of Christians as the Baptists are, merely from a coincidence of opinion on the subject of baptism, especially since the wild doctrines of the latter on the subject of civil government have always been disclaimed by the former, although it must be confessed a difficulty to distinguish them for some years after the Reformation.

The Baptists in England separate from the establishment for the same reasons as their brethren of the other denominations do; and from the additional motives derived from their particular tenets respecting baptism. The constitution of their churches, and their modes of worship, are congregational or independent; in the exercise of which they are protected in common with other dissenters, by the act of toleration. Before this act they were liable to pains and penalties as nonconformists, and often for their peculiar sentiments as Baptists. A proclamation was issued out against them, and some of them were burnt in Smithfield in 1538. Many of them were persecuted as Anabaptists in the reign of Elizabeth, charged with holding opinions which tended to anarchy. Indeed, during the latter part of Elizabeth's reign, the powers of the Star Chamber, and the High Commission, had almost destroyed dissent; the Baptists fled the country, and settled principally in Holland. Mr. Smyth, a beneficed clergyman who had seceded from the establishment, founded a Baptist church of English refugees at Amsterdam. He appears to have been an Arminian in point of sentiment; but in his settlement over this people we have the earliest evidence of the existence of regular Baptist churches. Mr. Smyth died in 1610, and was succeeded in his ministry by Thomas Helwisse, who shortly after returned with his congregation to England, and settled in London. The severities exercised by king James I. at this time against the Puritans and Baptists, called forth some able writings in explanation and defence of their principles. A petition was presented to parliament in 1620, after which the Baptists were legally acknowledged as a body distinct from the Anabaptists, although considerable prejudice existed against them, even to the time when bishop Taylor wrote his Liberty of Prophecying. It was particularly unhappy for their cause that the fifth monarchy men, of Cromwell's time, were chiefly Baptists. The year 1633 affords us the earliest records remaining of a particular baptist church in London, formed under a Mr Spilsbury. The persons who formed this congregation had separated from one of the independent persuasion; and, conceiving the right of administering baptism to descend in uninterrupted succession, sent one of their members over to Holland to receive that ordinance, and bring it over to them.

They might, it is true, have received baptism from some member of Mr. Spilsbury's congregation; but that body being Particular or Calvinistic Baptists would not have any connexion with the Arminian or General Baptists. Between these two denominations there never was much intercourse, nor is there at the present

day. After the murder of Charles I. both the Baptists and Independents suffered much from the intolerant spirit of the Presbyterians; but in the short parliament of Cromwell, commonly called 'Praise God Barebone's parliament,' from the circumstance of Mr. Barebone, a Baptist minister, having made himself conspicuous in it, the Baptists appear to have had some influence. Great suspicion, nevertheless, rested upon them generally; especially as amongst the Baptists at hat period were found some who opposed the Protector's government, and advocated republican principles, and others who believed the near approach of Christ to reign upon the earth, and were ever ready to promote by the sword the establishment of what was called by way of contempt the fifth monarchy. A conspiracy of the fifth monarchy was defeated by Cromwell, in 1650, and Harrison, the regicide, at their head, was imprisoned for life; but upon the restoration the Baptists publicly disclaimed Anabaptist principles, and presented the king with a confession of their faith. A second conspiracy of the same deluded class took place in 1661, after which the Baptists repeated their disavowal of Anabaptist principles, and, with the exception of their sufferings in common with their dissenting brethren during the period between the Restoration and the Revolution in 1688, from the rigorous measures employed to compel them to conform, neither the general nor particular Baptists have since that period suffered any considerable molestation. The particular Baptists, at a general assembly held in London in the year 1689, professed their belief in the distinguishing doctrines of Calvinism, which are still the general sentiments of all their churches. As a body they are highly respectable, and rising in importance. They have several academies for the education of students for the ministry in their congregations, the oldest of which is at Bristol; and also two exhibitions for students to be educated at one of the universities in Scotland, given them by Dr. Ward of Gresham college.

Both the particular and the general (or Arminian) Baptists had formerly messengers of their churches who exercised a species of episcopal authority; but their only church officers, at the present time, are ministers or pastors, and deacons. Their churches are not parochial, or confined to certain districts, but congregational and independent, every congregation being empowered to prescribe its own rulers. The meetings of the messengers and members of the different congregations are not for the general government of the body, but for mutual advice and encouragement.

A considerable controversy has of late agitated both the above denominations of Baptists, on the question of open communion, namely, whether persons who have been baptised in infancy may be admitted without any further baptism to the other sacrament when they arrive at years of discretion, provided in other respects they are thought proper persons. On this particular the teachers of both denominations are much divided in opinion, and frequent pamphlets have been written on both sides.

SCOTCH Baptists, a denomination of Christians in Scotland, who profess to deduce their original from the apostolic age. Their views of the initiatory sacrament, and arguments against the validity of infant baptism, are the same as those held by Baptists generally, but their collateral opinions, especially on the subject of church government, are peculiar. They stand in no particular connexion with any other class of Baptists, either abroad or in England, although they have churches and brethren in their own communion in London and other places. It was not known till lately that a society of Baptists had existed in Scotland before 1765, but now the fact is ascertained that such a society did really exist, and usually met both in Leith and Edinburgh as far back as the middle of the last century. At the period already alluded to, the Baptist profession publicly revived, first in Edinburgh and afterwards in other places, so that now there are disciples and brethren in all parts of the kingdom.

They are generally remarked for their unity and love to each other, to which is superadded a firmness in maintaining their religious opinions. I. They hold, from the New Testament, that each church planted by the apostles was a single congregation, and met together in one place. Acts ii. 1. 46; iv. 31; and v. 12; 1 Cor. xi. 18. 20; so that it was composed of visible believers; 1 Cor. i. 2; Philip i. 1; Col. i. 2; that it had a plurality of elders, or bishops, to rule and labor in the word and doctrine; (Acts xiv. 23; xx. 17; Philip i. 1; Titus i. 5; 1 Tim. v. 17; also a plurality of deacons to minister in the proper application of the church's bounty; Acts vi. 1—17; Philip i. 1; and that both were chosen not by their academical abilities, but by their characters laid down in 1 Tim. iii. 1—16; Tit. i. 5—10; and set apart by the laying on of hands; Acts vi. 6; 1 Tim. iv. 14; v. 22. II. They aim at the faithful and impartial exercise of discipline, according to the several rules laid down in the New Testament; Matt. xviii. 15—17; 1 Cor. v.; 2 Thess. iii. 6—15; 2 Tim. iii. 5. Tit. iii. 10, 18. Gal. vi. 1 Jude 22, 23. Such discipline, they say, is essential to the very being of a christian church; but altogether impracticable in any other society. III. They receive none into church-fellowship but such as make a scriptural profession of their faith in Christ, and show their readiness to observe whatsoever he enjoins; and they retain none in their communion who visibly depart, in any instance, from the faith and obedience of the gospel, and are proof against all the instituted means of recovery. IV. They hold that the rule of forbearance is divine revelation, making all due allowance for differences in natural tempers, capacities, growth in grace, &c. and exercising all long-suffering, lowliness, and meekness, in their endeavours to reclaim an erring brother. V. They consider it their duty to be all of one mind, in every thing that regards their faith and practice as a body. Acts iv. 32. 1 Cor. i. 10. 2 Cor. xiii. 11. Philip. i. 27. ii. 2. 1 Pet. iii. 8. Nothing is decided among them by human influence or policy, or by majority of votes, but by the unanimous consent and explicit agreement of every member. VI. They meet every first day of the week for

reasons and ends given in Matt. xxvii. 1—7. Luke xxiv. John xx. 19, 26. Acts ii. 1. xx. 7. 1 Cor. xi. 18. 20. xvi. 2. Rev. i. 10. When they observe the following institutions of divine worship: 1. The public reading of the scriptures of the Old and New Testaments, from what is written, Acts xv. 20, 21. Col. iv. 16. 1 Thess. v. 27. 1 Tim. iv. 13. 2. The mutual exhortation of the brethren, which is attended to on the morning of Lord's day, immediately after the reading of the scriptures. Col. iii. 16. 1 Thess. iv. 18. Heb. iii. 13.; x. 24, 25. 3. Preaching and expounding the word, which is done by the elders and pastors. 1 Pet. v. 2. 1 Tim. v. 17. Acts v. 42. xx. 20. 2 Tim. iv. 2. 4. The public prayers, not only of the elders, but also of the brethren, as was exemplified in the first churches. Rom. xii. 12. 1 Cor. xi. 4. xiv. 14. Eph. vi. 18. 1 Tim. ii. 1, 2. Jas. v. 16. Jude 20. To these prayers and thanksgivings, the whole church say Amen. 1 Cor. xiv. 16. 5. The singing of praise. Matt. xxvi. 30. 1 Cor. xiv. 15. In doing which they use the Psalms of David, and other spiritual songs. Eph. v. 19. Col. iii. 16. 6. The fellowship, contribution, communication, distribution, or well doing, as in Rom. xvi. 26. 2 Cor. ix. 13. Philip. iv. 14, 15. 1 Tim. vi. 18. Heb. xiii. 16. i. e. the collection for the support of the poor saints, and other necessary uses. See Acts ii. 41. and 1 Cor. xvi. 1, 2. 7. The breaking of bread, or the Lord's supper: this they observe every Lord's day without any regard to preparation and thanksgiving days, as the church at Troas came together chiefly for that end on the first day of the week. Acts xx. 7. 8. In the interval of public worship, they have the feast of charity, in an appropriate place, and generally contiguous to the ordinary place of meeting for worship, where every member may attend. Its nature is to promote love, pleasure, harmony, and mutual edification among the brethren, also for disengaging the minds of the members, from the time and care spent in preparing a diet at their own houses on that day; for refreshing those who come from a distance, and for affording a moderate repast to the poorer members. These love feasts they deduce from the apostolic churches. Acts ii. 46. xx. 11. 1 Cor. xi. 20, 21, 22. Jude 12. 2 Pet. ii. 13. VII. They consider it their duty to join fasting with prayer, on particular occasions. Matt. ix. 25. Acts xiii. 2. compare Isaiah lviii. 5. with James iv. 8—10. VIII. They use the kiss of charity on various occasions; such as, the reception of a new member, the forgiveness of offences, the reconciliation of differences, the setting apart of office-bearers, the departure or return of brethren, &c. Rom. xvi. 16. 1 Cor. xvi. 20. 2 Cor. xiii. 12. 1 Thess. v. 26. 1 Pet. v. 14. IX. They wash the saints' feet, even literally, and that not as a ceremony, but whenever it can be of real service to a brother; the men perform that service to those of their own sex, and the women to their's only. John xiii. 14, 15. X. They abstain from eating of blood and strangled, or 'flesh with the blood thereof;' because these were not only forbidden to Noah and his posterity. Gen. ix. 3, 4; but also under the gospel. See Acts xv. 28, 29. xvi. 4. and xxi. 25. Rex. ii. 20. 24. and ver. 52. XI. They do not find themselves at liberty to eat a common meal with persons excommunicated from their fellowship; but they do not set aside any natural or relative duty. Matt. xviii. 17. Luke xv. 2. Acts x. 28. 1 Cor. v. 9, 10, 11. And XII. They consider themselves subject to the powers that be in all lawful civil matters, Rom. xiii. 1—6. 1 Pet. ii. 13—16. to honor them, ver. 17. pray for them, 1 Tim. ii. 2. pay them tribute, Rom. xiii. 6, 7. and rather to suffer patiently for a good conscience, than in any case to resist them by force. Acts v. 29. 1 Pet. ii. 19—24. Therefore they can have no fellowship with any who are known to be disaffected to government; Prov. xxiv. 21.

BAPTISTERY, in ecclesiastical writers. was one of the exedræ, or buildings distinct from the church itself; and consisted of a porch or anti-room, where the persons to be baptised made their confession of faith, and an inner room, where the ceremony of baptism was performed. Thus it continued till the sixth century, when the baptisteries began to be taken into the church porch, and afterwards into the church itself. The ancient baptisteries were commonly called φοτιστηρια, photisteria, q.d. places of illumination; either because that name was sometimes given to baptism, or because they were the places of an illumination, or instruction, preceding baptism; where the catechumens were taught the first rudiments of the Christian faith.

Baptisteries in general are either octagonal or circular, surmounted with a dome, and as the font is usually placed at the entrance of the church to represent the initiation of the new christian, so the baptistery is situated at the approach to the western or principal gate. These edifices are of very high antiquity, since one was prepared for the ceremonial of the baptism of Clovis; and, as the times of baptising returned but seldom, they have been usually very capacious. In Italy, although the churches were numerous, in some of the most considerable cities there was only one general baptistery, to which they all resorted. This was dedicated to John the Baptist, and the church to which it was attached, assumed the pre-eminence connected with the church of Santa Sophia. At Constantinople was a spacious baptistery, in which we read of ancient councils assembling. Of the baptisteries of Rome, the Lateran is the most ancient, in which some antiquaries are said to have discovered the remains of the Thermæ, anciently within the precincts of the imperial palace. The baptistery of Pisa, both externally and internally, presents a fine display of the most exquisite workmanship, and accordingly has greatly excited the admiration of modern travellers, among whom we may distinguish the celebrated Joseph Addison. The baptistery of Florence is remarkable for the beauty of its gates. Here also are to be seen the bas reliefs, of which Michael Angelo was so enamoured, that he exclaimed they deserved to be portals of paradise. The Italian baptistery in appearance is not very dissimilar to the octagon in Ely cathedral at the intersection of the transepts and nave; but it does not appear from history that any building especially devoted to the purpose of baptism, was ever

erected in England. Many of the fonts in our churches are nevertheless highly interesting to the antiquarian, that of Bridekirk in Cumberland is of Danish origin, and that which was removed from the church of St. Peter in the east, Oxford, exhibited proofs of an antiquity almost as early. See FONT.

Upon fonts and baptisteries in general, the following curious inscription is frequently found, especially upon those which are ancient: 'ΝΙΨΟΝ ΑΝΟΜΗΜΑΤΑ ΜΗ ΜΟΝΑΝ ΟΨΙΝ.' The pious monks often exercised their gifts in forming acrostics and chronograms; but this line exhibits the happiest instance of the amphisbæna; the words being exactly the same whether we read the line backwards or forwards.

BAPTIST MISSION.—While the Missionary Societies of various denominations have an ulterior object in view, too high and sacred for much discussion in books of human science, there are collateral benefits to mankind, which gradually accompany their march, that fall strictly within our sphere to record. The bearing of these societies on our acquaintance with the physical and political geography of the globe, and on the study of its languages, ancient and modern, is obvious: while the very object alluded to, and a missionary ardor for its accomplishment, has armed, and will arm, the traveller and the scholar (when a missionary), with a patient and persevering zeal, to be imbibed, perhaps, in no other school. It will be principally to the literary and scientific aspect of these institutions that we shall, in this work, direct the attention of the reader; but we purpose, in so doing, to insert a slight sketch of the rise and progress of all the reputable societies of this kind.

Among Protestants, it may be said, that in 1732 the Unitas Fratrum, or Moravian brethren, led the way in these benevolent enterprises. They became deeply impressed with the fact that so many millions of the human race were sitting in darkness, and held in bondage by idolatry and vice; and they formed themselves into a small society for endeavouring to convey the benefits of Christianity to heathen nations. At first their beginnings were very small, but they now possess between forty and fifty settlements, employing from 160 to 180 missionaries. For sixty years this society pursued its way, in the most unostentatious and silent manner, before any others of a like nature were formed.

Oct. 2, 1792, a few Baptist ministers meeting at Kettering, Northamptonshire, entered into a series of resolutions for the formation of a society, to be called The Particular (or Calvinistic) Baptist Society for propagating the Gospel among the Heathen. 'But so far,' say they, 'were we from having in view the exclusive promotion of our own peculiar principles as Baptists, that we were determined from the beginning, if no opportunity appeared for sending out Missionaries of our own, that we would assist other societies already in being amongst the Presbyterians and the Moravians.' The names of the first committee were John Ryland, Reynold Hogg, William Carey, John Sutcliff, and Andrew Fuller. Reynold Hogg was chosen Treasurer, and Andrew Fuller, Secretary.

Nov. 13.—The committee meeting again at Northampton, learned that a Mr. John Thomas, a surgeon, who had been several years in Bengal, and during that period had occasionally preached the gospel to the natives, was then in London. He was said to be endeavouring to establish a fund for a mission to that country, and to be desirous of engaging a companion to return with him. Enquiry was made concerning Mr. Thomas, as to his character, principles, &c.; and the accounts which were received proving satisfactory, the committee resolved to invite him to go out as one of their missionaries, and to endeavour to furnish him with a colleague. Mr. Carey, on being asked if he were willing to accompany Mr. Thomas, answered readily in the affirmative. And thus was furnished to the society one of the most useful laborers in the missionary field, and ultimately one of the most profound of oriental scholars, from the humble station of an uneducated provincial dissenting minister.

The next step was to calculate the expense of sending them out, and to obtain the means of defraying it. The expense was estimated at £500, which sum required to be raised in about three or four months. To accomplish this the committee frankly stated to the religious public their plan, requesting that so far as it appeared to be deserving of encouragement, they would encourage it. Letters also were addressed to the most active ministers of the denomination throughout the kingdom, requesting their concurrence and assistance. The result was, that more than twice the sum which had been asked for was collected; yet, when the work was finished, the actual expense had so far exceeded the estimate, that there were only a few pounds to spare. A principal cause of this was, that the whole of the new missionary's family were induced to accompany him.

The first laborers in this mission sailed on June 13, 1793, on board the Princessa Maria, a Danish Indiaman; but no tidings of their proceedings arrived in this country until July of the following year. For the first three or four months, it seems, Mr. Carey found himself in considerable pecuniary difficulties. The investment which was taken out for their immediate support, was sunk; and he, with his wife and family in a foreign land, were utterly destitute of the means of subsistence. He now, therefore, enquired for secular occupation; and early in March, 1795, received an invitation from Malda, to take the superintendance of an indigo factory. His colleague also, Mr. Thomas, who had stopped at Calcutta, under an idea of supporting himself by his profession, received, a little before, a similar invitation.

Mr. Carey accepted the superintendence of an indigo factory at Mudnabatty, and Mr. Thomas of another at Moypauldiggy, both in the neighbourhood of Malda. Here they considered themselves capable of watching the best opportunity for proceeding with their noble undertaking in coming out; and letters were sent to England, expressing their great pleasure in being able to decline, at present, any further assistance from the Society's funds.

At home, about this time, two young men, Mr. Jacob Grigg, and Mr. James Rodway, had offered themselves as missionaries, and being considered suitable persons, the committee resolved on another mission, i. e. to Africa, in the neighbourhood of Sierra Leone. In the autumn of 1795, the missionaries left England; but through the indiscretion of one of them, and the ill health of the other, the undertaking failed. In the spring of 1796, a Mr. J. Fountain offering himself as a missionary, was accepted, and sent out to join his brethren in India.

During the first year of his residence, Mr. Carey had repeated attacks of an intermittent fever with a dysentery. Mrs. Carey also, and their eldest son, were much afflicted; and their third son, Peter, died at five years of age. As soon as they were able to apply themselves to the work, they set up schools at their respective factories; preached every Sunday, and frequently on week days; and Mr. Thomas being particularly attentive to the poor, in administering medicines, &c. to them; many people, besides the workmen, attended their preaching. Two Englishmen, a Mr. Long and a Mr. Powell, who had settled in Bengal, joining in the views of this little band, on Nov. 1, 1795, they, with the missionaries, formed a church, and commemorated the sacrament of the Lord's Supper. Mr. Long was afterwards excluded for improper conduct; but Mr. Powell continued an useful character till his death, which was at Dinagepore, on Sept. 5, 1802. An European or two were joined to this body, from 1796 to 1800; a spirit of enquiry was awoke among the natives, and a school erected at Dinagepore; but no native converts manifested, as yet, sufficient boldness to shake off caste for the benefit of the new faith.

The missionaries, however, were not easily discouraged. They requested new helpers from home, and particularly some one who should understand the printing business. Accordingly, in the spring of 1799, Mr. and Mrs. Marshman, Mr. and Mrs. Grant, Mr. and Mrs. Brunsdon, Mr. William Ward, and Miss Tidd, embarked for India. Mr. Ward being a printer, and Mr. and Mrs. Marshman having kept a school. Their instructions were, to 'beware, both from principle of conscience, and from a regard to their own interest, and that of the mission, of intermeddling with any political concerns—to be obedient to the laws in all civil affairs—to respect magistrates, both supreme and subordinate,' and teach the same things to others—in fine, to apply themselves wholly to the all-important concerns of that evangelical service to which they had so solemnly dedicated themselves.' Moreover, that 'however gross might be the idolatries, and heathenish superstitions that might fall under their notice, they should sedulously avoid all rudeness, insult, or interruption, during the observance of such superstitions, observing no methods but those of Christ and his apostles, namely, the persevering use of scripture, reason, prayer, meekness, and love.'

Mr. Carey was anxious that the new missionaries and their wives might be permitted to proceed and settle in the neighbourhood of Malda. He had taken a small place at Kidderpore, about twelve miles distant, where he intended to carry on a little business, and to erect some dwellings for them. The relinquishing of this undertaking would be a loss of £500. But the British authorities were inflexible in their opposition to his plan of increasing his establishment. Mr. Carey, therefore, determined to remove to the Danish settlement of Serampore, where his brethren had arrived.

This important step was accomplished January 10, 1800, and the next day he was introduced to the governor, who received him in a very friendly manner. The first object of attention was to settle a plan of internal government. All the missionaries determined to consider themselves as one family; they were to preach and pray in turn; one to superintend the affairs of the family for a month, and then another. Mr. Carey was appointed treasurer and keeper of the medicine chest; Mr. Fountain librarian. Saturday evening was devoted to adjusting any differences which might arise during the week, and pledging themselves to love one another; finally, it was resolved that no one should engage in any private trade; but that whatever was done by any member of the family, should be done for the benefit of the mission.

The first sheet of the Bengalee New Testament was printed May 16. They worked off 2000 copies, besides 500 of the gospel by Matthew, for immediate distribution. Early in June they opened a Bengalee school, in which the children of those natives who chose to send them, were taught gratis; and by the 20th of July they had forty pupils. A native, named Gokool, also appeared exceedingly attentive to their ministry. On the 22d of December, Gokool, and a man named Kristno, came and ate in public with the missionaries, by which act they threw off their caste. All who witnessed it were surprised; it was so universally said, No one would lose caste for the Gospel.

'Thus the door of faith is opened to these Gentiles—who shall shut it?' said Mr. (now Dr.) Marshman. 'The chain of the caste is broken, who shall mend it?' The same evening Gokool, without his family, and Kristno with his, came and offered themselves willingly to the church, each making a solemn profession of faith in Christ, and of obedience to his commands. It was soon noised abroad that these people had lost caste; and now a time of trial drew near. The next day a great company of people assembled, two thousand or thereabouts, pouring out their execrations upon them. Taking them by force, they first dragged them before the Danish magistrate; but he, instead of censuring, commended them for what they had done. Being dismissed, they came a second time with Kristno with a new charge, accusing him of refusing to deliver up his daughter to a man who had contracted for her in marriage. The magistrate, however, defended Kristno, and assured the girl that she should not be compelled to marry the man against her consent. The governor also promised the missionaries that they should not be interrupted in baptising. The hubbub that had thus been raised, did not shake the resolution of Kristno; but his family, and Gokool, were in-

timidated by it. On the 27th they sent to the mission-house, saying, 'they wished to put off their baptism for a few weeks.' The next day (the 28th) was the time appointed for baptising. Kristno came forward, and with Felix Carey, was baptised in the Hoogly. A considerable number of Europeans and natives attended; many of whom appeared to be struck with the solemnity of the ordinance. Shortly after, a Mr. Fernandez, and Joymooni (Kristnoo's wife's sister), were baptised, and joined the church. At a meeting on the 22d, she said, 'She had found a treasure in Christ greater than every thing else in this world.' Kristnoo said his chief 'thoughts now were about the salvation of others.'

The effect of these baptisings was, that all the children of the Bengalee school were taken away by their parents, lest they should be made Christians; and the only children left for instruction were those of Kristno, to whom the missionaries now paid the greater attention, and amongst whom there were some hopeful appearances. The baptised Hindoos appeared to improve much in knowledge and affection. Their manner of speaking was singular and impressive. 'Christ (said one) is my joy, my hope, my all. If worldly things draw my mind from him, I say, mind, why dost thou leave Christ? There is no other Saviour. If thou leave him, thou fallest into hell.' 'I was formerly,' said another, 'in prison; the light of the Gospel came to the prison door, and I got out!'

About this time Mr. Carey was appointed by Marquis Wellesley to a professorship in the New College of Fort William. When an application was made to him on the subject, he had some hesitation as to complying with it, lest it should interfere with his proper work as a missionary. Nor did he accede to the appointment till he had consulted with his brethren, who thought that it might promote rather than obstruct the great objects of the mission. Every temporal advantage that might arise from it would, on the ground of their established rules, be only so much added to the missionary stock. And here let us add, that steadily, and when these advantages have risen to several thousands per annum, has this good man added them to that stock.

On the morning of May 8th, during our short war with the Danes, the British flag was hoisted at Serampore. At ten o'clock the missionaries were ordered to appear at the government house. On presenting themselves, they were treated with the utmost civility, both by the late Danish governor, and the English commander, and told to go on with their school, preaching, &c. in the same peaceable way as before.—On the 29th, Gokool, who had fainted at the outset, came forward again, and on June 7th, he was baptised. Kristno was now in the habit of talking to his neighbours who came to him at his work, in some such strain as this:—'In all your worship there is no fruit. None of the debtas died for sinners; but Jesus Christ came into the world for this. This is the greatest love I ever heard of. At the house of the missionaries I have seen such love as I never saw before. When a man believes in Christ he gets a new mind. This is the fruit of becoming a Christian, &c. &c.' The missionaries from such specimens hoped that he would soon be able to preach Christ to his countrymen.

During this month, Mr. Ward and Kristno visited certain parts of the country from whence persons had come for religious instruction, preaching and distributing papers as they proceeded; and some of the women went to visit their female relations up the country, where they also conversed about the gospel. Mr. Ward in his excursion was detained by a police officer, on the ground 'that the company had given no orders for the natives to lose caste.' Mr. W. assured him that the papers were entirely religious; and on his offering to sign them with his own name, the officer released him. The papers thus signed were sent to Calcutta, and examined. Some alleged, that it was improper to attack the religion of the natives; but others answered that there was nothing more in the papers than had been always tolerated in the Roman Catholics in the company's territories. Nothing therefore came of it; and during the administration of Marquis Wellesley, no more was heard of the subject.

In the course of this year, colonel Bie transmitted to his government an account of the settlement of the missionaries at Serampore, in consequence of which his Danish majesty directed the Royal College of Commerce at Copenhagen to signify his pleasure to the governor of Serampore, that the society of missionaries be considered as under his majesty's protection and patronage, which they accordingly signified by a letter, bearing date Sept. 5, 1801. The governor-general also of British India was pleased to assure one of the missionaries, that he 'was perfectly acquainted with all the concerns and operations at Serampore, and felt great satisfaction at their affairs being attended with a degree of success'.

In the beginning of 1802 the mission had baptised seven natives.

On the 4th of April, a native who had previously lost caste, of the name of Syam Dass, was baptised. He proved to be a simple-hearted good man, and was instrumental to the conversion of one of his neighbours, Bharut; but died, or was murdered on a journey in the autumn of the same year, about five months after his baptism. About this time a brahmin came to Serampore, who lived with Dulol, a famous leader of a Hindoo sect. They are a kind of Deists, setting light by the superstitions of the country, and by the caste; but making light also of sin, and a future state. He said that Dulol sent him to get baptised first, and that he himself would follow, and bring with him an hundred thousand disciples! The missionaries had no faith in this tale; but thought it right to pay him a visit. Mr. Carey, Mr. Marshman, and Kristno (who had formerly been one of his disciples) therefore, set off for Ghospura, the place of his residence. They perceived him to be what they expected, a designing man, living in state only upon the credulity of his followers.

On May 10th, Mr. Ward and Mrs. Fountain were married. Heretofore the marriages had been performed by an English clergyman; but the missionaries having been advised to marry their own people, they, with the concurrence of the civil authorities, drew up a simple form for the purpose; and the business was conducted to the satisfaction of all present. In June or July five more natives were baptised at Serampore. Towards the end of this last month, a Mussulman, whose name was Moorad, came from Ponchetaluckphool, or as they usually call it by way of contraction, Luckphool, with an invitation from a considerable number of people in that part of the country to go and preach the gospel to them. Mr. Marshman, accordingly, set out on the 10th of August, taking Petumber Mittre and Bharut with him. At Luckphool, they halted under a large tree, which was the appointed place for hearing; the people came together and received them sitting down on the grass, and after having heard with much earnestness for about half an hour, entreated the preacher to rest, and take refreshment. He did so, and then renewed his subject. They spent the evening, sitting round him, and asking questions on Christ, the resurrection, a future state &c.

These people, amounting to some hundreds, had, for the last fourteen years, begun to dislike the idolatry of the country; and attaching themselves to a grave elderly man, as their goroo or teacher, had from that time been enquiring after the right way. Neelo, for that was the old man's name, had taught them that there was one God, whom he called father, who alone was to be worshipped; that sin was to be forsaken; and that a farther revelation was to be expected. It was in consequence of his having heard of the missionaries that Moorad was sent to Serampore, to request them to come and visit them. After the worship, as above related, the old man took Mr. Marshman aside for private conversation, and appeared to be very averse to Brahminism, and friendly to the gospel as opposed to it; recommending it also to his people, as being the revelation which he had given them to expect. In returning home, Mr. M. called on another goroo, who had nearly 20,000 followers. His name was Seeb Ram Dass, and his residence at Baggerdandakatty. There was much less pomp and artifice in him than in Dulol; and less conviction and affection than in Neelo, and his people at Luckphool. The general impression was, that these people were loosened from the Hindoo and Mahommedan systems, which marked the hand of providence, and might be introductory to the gospel.

During this year Mr. and Mrs. Chamberlain were sent out by the committee to assist in the labors of the India mission. About the same time, the missionaries purchased the house and premises adjoining their own. The garden and out-buildings contained more than four acres of land. By this addition they had room not only for the schools, and for the printing and binding business, but also for any new missionaries that might arrive. They made themselves trustees for the society, as they had done in the first purchase. Towards the end of January, 1803, besides the New Testament, the first volume of the Old, the Psalms, and a part of Isaiah, were finished, and began to be a good deal read in different places. A new fount of Naggree types was nearly completed; and a house was taken in Calcutta for preaching to both Europeans and natives.

In February they speak of 'the affairs of the mission growing more and more weighty.' Several new enquirers arrived; amongst whom was Sheetaram, a sooder, from Bishoohurry; in Jessore, and who on the 27th was baptised. The zeal, the simplicity, and the good conduct of this man proved, as will be seen, a great blessing to several of his relations and neighbours.

In April two of the native converts intermarried. The ceremony was conducted much in the same way as Mr. Ward's had been. Mr. Carey, after explaining the nature and ends of marriage, and noticing the impropriety of the Hindoo customs, read certain portions of scripture, and after them the marriage agreement. The parties then joined hands, promised love, faithfulness, obedience, &c.; then signed the agreement, to which others added their names as witnesses. A prayer for a divine blessing followed, and the whole was concluded with a temperate and cheerful repast of raisins, plantains, &c. The day following they had a supper at the house of Kristno, the bride's father, where all sat down together without distinction of color or country. This to the spectators was quite a new thing. During this month several of the native brethren, as Kristno, Presaud, Ram Roteen, &c. went into the villages to talk with the people about Christ. They were treated with abuse, but bore it with Christian meekness, telling their abusers, that they 'only did what every sect did, who, whether Hindoos or Mussulmans, were allowed to perform their poorjahs in the streets; and that insults, stripes, and even death were good for them, so that God by them did but turn their hearts.'

Frequent additions were now made to the Baptist flock here; nor did the diligence of the missionaries slacken in their noble work of translating the scriptures.

In August, a new and improved edition of the Bengalee New Testament was begun, as only 600 copies remained of the first impression. In September, the convert, Gokool, seemed to be drawing near his end. But his mind was steadily fixed in the faith of Christ, and on the 7th of October he died. 'About two hours before his death,' says Mr. Marshman, 'he called the native brethren round him to sing and pray. He was perfectly sensible, resigned, and tranquil. Some of the neighbours had been trying to persuade him to employ a native doctor; but as all their medicines are accompanied with heathen incantations, he refused them, saying, he would have no physician but Jesus Christ. 'How is it,' 'said they, 'that you, who have turned to Christ, should be thus afflicted?" My affliction, replied he, is on account of my sins: my Lord does all things well. Observing Komal to weep (who was a most affectionate wife) he said, Why do you weep for me? His tranquil and happy end made a deep impression on all around. They said one to another, May my

mind be as Gokool's was.' His funeral, in the European manner, made also a considerable impression on the natives. On the 23d, a brahmin from Assam was baptised.

During this year, the society presented a copy of the Bengalee New Testament, and of the pentateuch, to his majesty, Geo. III. by the hands of Robert Bowyer, Esq. His majesty was pleased graciously to accept of them, and to direct that his thanks should be given to the society. During this year also a plan was laid for translating the scriptures into various other eastern languages.

In February, 1804, these worthy laborers had the happiness of devolving a portion of their work upon two native teachers, and ordained Kristno and Petumber Shingo to the work of the ministry, with prayer and the imposition of hands. In the course of the year, fourteen more natives were baptised.

About four years previously, Mr. Ward being, on a visit at Calcutta, went with Kristno to a village called Ramkreeshnopore, on the other side of the river, opposite Calcutta. Here they left a number of small tracts, and a New Testament. Till now the effects were unknown. Kristno, on revisiting the village, meets with a byraggee, who tells him that the books have been read, and that several persons are convinced by them.

In November and December twenty-one persons were baptised, seven of whom came from Kristnopore, and were the fruits of the New Testament and tracts which were left at that village. One of them, named Kristnoo Dass, referring to Mr. Ward's having declared that 'it was for the use of the whole village, and that he who could read the best should keep it, and read it to all who wished to hear it,' said, 'he had got it, and that the reading of it had changed his ideas, and made him leave off idolatry, and put his trust in Christ.' The Testament was produced, and was nearly worn out by reading. Ten out of the twenty-one were baptised on November 3d. 'A solemn seriousness,' says Mr. Biss, 'pervaded the company. Some who seemed to know nothing of the power of religion, nevertheless shed tears.' At the Lord's supper there was great joy through the whole church, singing, and making melody in our hearts to the Lord.'

In the autumn of this year, captain Wickes being in London, the committee sent by him 1000 guineas, which had been collected in England, Scotland, and Ireland, towards the translation of the Scriptures into the eastern languages. On the captain's arrival in America, he expressed a wish in the public papers, that the friends of religion in his country would add something to it. The result was, that by the generous exertions of the different denominations, the original sum was considerably more than doubled, and sent in dollars to Serampore.

We have been following this band of brethren to the period of their cause taking that deep and well grounded root in India, from which it will not quickly be removed. But their steps were not everywhere encouraged. Both at home and in India, British authority and influence were occasionally arrayed against them. When, on the 23d of August, Messrs. Chater and Robinson arrived, a demur was made as to their being permitted to proceed to Serampore. Next day, Mr. Carey was told by the magistrates that they had a message for him, 'that as government did not interfere with the prejudices of the natives, it was the governor-general's request that Mr. Carey and his colleagues would not.' As explained by the magistrates, this request was said to be a kind of order. 'They were not to preach to the natives, nor suffer the native converts to preach; they were not to distribute religious tracts, nor suffer the people to distribute them; they were not to send forth converted natives nor take any steps, by conversation or otherwise, for persuading the natives to embrace Christianity. Mr. Carey enquired whether they had any written communication with the governor-general; and being answered in the negative, took leave. This, however, it was afterwards said was not meant 'to prohibit Mr. Carey or his brethren from preaching at Serampore, or in their own house at Calcutta; only they must not preach at the loll bazaar. Nor was it intended to prevent their circulating the scriptures, but merely the tracts abusing the Hindoo religion: or to forbid the native Christians conversing with their countrymen on Christianity, only they must not go out under the sanction of the missionaries.'

In a conversation that took place between the magistrates and a friend of the missionaries, they acknowledged themselves 'well satisfied with their character and deportment.' Messrs. Chater and Robinson, however, were commanded to return to Europe.

A tract, about this time, was translated and sent to England, in which the missionaries were represented as calling the natives 'barbarians,' and their shasters 'barbarian shasters,' when in the original they had only intreated them not to reject the bible as being the shaster of the barbarians, or 'M'leeches,' a name by which they designate all who are not of the caste. After this a pamphlet appeared by Mr. Twining, and was followed by several more, written by major Scott Waring, and others: some openly espousing the cause of idolatry, and most of them filled with unfounded statements, and ineffectual endeavours to trace the Vellore mutiny to the attempts at christianising the natives. The charges produced in these pamphlets were answered by the friends of the mission. Not long after, a tract which had been printed in Bengalee, and which in that language contained nothing offensive, was put into the hands of a native to be translated into Persic. The translation being finished, it was, through the pressure of business, inadvertently printed off without being first inspected by the missionaries; and the translator having introduced various strong epithets, calling Mahomet a tyrant, &c. which it was alleged would irritate his followers, the British authorities took it up in a serious manner. Mr. Carey being sent for, readily acknowledged the impropriety of the epithets, and promised to enquire into the affair. Had the object of the party been merely to prevent the disturbance of the public tranquillity, things would have ensued here. But proceedings were commenced

which threatened ruin to the mission. In consequence, however, of an explanation, and a respectful memorial presented to the governor-general, the most serious part of the proceedings was revoked; and when two of the missionaries waited on his lordship to thank him for his candour in regard to their memorial, he replied, that nothing more was necessary than a mere examination of the subject, on which every thing appeared in a clear and favorable light. The missionaries however, were required, in future, not to print any tracts without first submitting them to the inspection of government.

In 1807 new rules were formed suited to the present state of the mission, every station being independent of the other, but all united as a general body. A considerable advance was made in ten of the translations: two new founts of type completed, viz. the Orissa and the Mahratta, and two others begun, viz. the Burmah and Chinese; a new and improved fount of Nagree also begun. With respect to printing, an impression of 1500 copies of the fourth volume of the Bengalee Old Testament, containing all the prophets, was completed; the third volume, comprising the historical books, being in the press; an edition of 10,000 copies of Luke, the Acts, and the epistle to the Romans was completed; the New Testament in the Sungscrit and Orissa considerably advanced; and the Hindostanee, Mahratta, and Guzuratee, put to press.

January 28, 1808, Serampore was taken by he English, but without making any difference n the situation of the missionaries. Mr. F. Carey, having studied medicine at Calcutta, introduced the vaccine inoculation at Rangoon. After having inoculated about fifty in the city vith success, he was sent for by the governor to perform the operation on his children. This circumstance proved favorable to their settling s missionaries.

During this year the Danish clergyman at Serampore being dead, a question was moved mong the inhabitants who should succeed him? The majority expressed their wish, that the missionaries might be permitted to do so. A petition was accordingly presented to the governor-general for the purpose, which being granted, he parish church has from that time, about September, been occupied by some of the Baptist rethren. They accept of no pecuniary reward or their services.

Towards the latter end of September there was second examination of the lads engaged in the udy of the Chinese language, held at Serampore; at which were present the vice-president f the Asiatic Society, with several other European gentlemen, who expressed their satisfaction i very strong terms. The missionaries now occupy the ten following stations, viz.

Bootan,	Missionary, Robinson.
Dinagepore, ...	Fernandez.
Saddamahl, ...	Wm. Carey.
Goamalty, ...	Mardon.
Miniary, ...	Moore.
Cutwa, ...	Chamberlain.
Jessore, ...	Carapeit Chater.
Serampore, ...	Carey, &c.
Calcutta, ...	Carey, &c.
Rangoon, ...	Chater and F. Carey.

In the month of March, 1809, they finished the Orissa New Testament. Towards the close of this year an improved paper manufacture was established in Serampore. The Benevolent Institution had increased to nearly ninety children, and a humane medical gentleman prescribed and furnished medicines for it and the family gratis. Access was allowed, and the gospel freely preached amongst the soldiers and their wives in the fort. In all the stations 106 were baptized during the year.

From the commencement of the following year, the missionaries speak of themselves no longer as a single mission, but as divided into five missions, according to the different languages of the country, and which they designate, the United Missions in India. These are the Bengal, the Burman, the Orissa, the Bootan, and the Hindoost'han. The Bengal contains five stations, the Hindoost'han two, and the rest one each.

In March the New Testament in the Hindee and Mahratta languages, the Pentateuch in Sungscrit, and the Prophetic books in Orissa, were finished at press; and considerable numbers of them were sent and distributed in the respective countries, from whence they afterwards received intelligence of their being read and understood.

In April the plan suggested by Dr. Bell and improved by Mr. Lancaster was introduced by Mr. Marshman into the school at Calcutta, by which the number of children could be greatly increased, and the expense contracted. Ground was purchased, and a new school-house erected, near the chapel, ninety feet by seventy, which would contain 800 children. Among the children in this school was a Malay boy, bought by Captain W. out of the hands of persons who were fattening him for sale to the Batta cannibals!

On the 11th of March, 1812, occurred a memorable calamity for the mission, the spacious printing-office at Serampore was consumed by fire, with all the types, many valuable MSS. and a large quantity of paper; the whole amounting to a loss of nearly £10,000. The missionaries, though much affected, were not greatly disheartened, nor in any degree induced to relax their efforts. New founts of type, in all the eastern languages, were cast, as soon as possible, from the melted metal recovered from the ruins; and the printing of the Scriptures was resumed, as fast as they could be prepared.

On the 19th of February the following year, the Tamul New Testament was finished at the press, and on the 20th was laid before the Calcutta Auxiliary Bible Society, at their anniverversary. This edition, consisting of 5000 copies, was begun in April 1812, and completed in rather more than ten months.

The progress of the translations, during this year, cannot be better described than in an extract from a letter of Dr. Carey, dated December 14.—'We are, at this time, engaged in translating the Bible into twenty-one languages, including the Bengalee, which is finished. This week, we obtained a person to assist in the translation of the Scriptures into the Kassai language. About a fortnight ago we obtained help for the Sindh and Wuch. I believe we have now all the languages in that part, except that of Kuten,

which, I hope, will soon be brought within our reach. We have not yet been able to secure the languages of Nepala, Bootan, Munipoora, and Siam, and about five or six tribes of mountaineers: besides these, I am not acquainted with any language on the continent of India, into which the word of God is not under translation.'

At the public disputation of the students of the college of Fort William, held before Lord Minto as visitor of the college, on September 20th, his lordship, after enumerating their recent labors, concludes thus: 'I profess a very sincere pleasure in bringing the literary merits of Mr. Marshman and the other Reverend Members of the Serampore Mission to the notice of the public, and in bearing my testimony to the great and extraordinary labors which constancy and energy in their numerous and various occupations have enabled this modest and respectable community to accomplish. I am not less gratified by the opportunity which their literary achievements afford, of expressing my regard for the exemplary worth of their lives, and the beneficent principle which distinguishes and presides in the various useful establishments which they have formed, and which are conducted by themselves.' The stations occupied by the mission in 1814 had increased to twenty-four.

In 1815 the society had to sustain one of its greatest losses at home in the death of their secretary, the Rev. Andrew Fuller, who expired at Kettering, after a short illness, on May 7th. He had sustained this arduous and important office ever since the commencement of the society in 1792; and at length fell a sacrifice to its accumulated cares and labors. At the next meeting of the committee, Dr. Ryland, of Bristol, was requested to undertake the office, *pro tempore*; and, at the annual meeting, held at Northampton, in October, this appointment was confirmed, and Mr. Hinton, of Oxford, associated with the Doctor, as joint-secretary. November 27th the mission premises were visited by the Right Hon. Earl Moira, the bishop of Calcutta, and other distinguished personages, who expressed their high gratification with what they saw. On December 15th the settlement was restored to the Danish government.

January, 1818, say the missionaries, 'In the Bengalee we have commenced a new edition, of 5000 copies, of the whole Scriptures, in a new and much-reduced type, reduced by brother Lawson, when he resided at Serampore. By means of this alteration we shall be able to comprise the whole Bible in one large octavo volume of 850 pages; which has hitherto occupied five volumes, of 800 pages each. The brethren intend to print 5000 additional Testaments, forming a thin volume, of about 180 pages. In the Sungscrit, the Latin of the east, and intelligible to almost all the learned men throughout Hindoostan, the Historical Books have been completed, and the printing advanced to the middle of Jeremiah. We therefore expect to complete this volume within the next three months, and shall then have printed the whole of the Scriptures in that language. The Hindee Bible is still further advanced; and we fully expect that within a month the last part will be ready for distribution. We shall then have printed the first edition of the whole Scriptures, with a second edition of the New Testament. In the Mahratta the historical books have been printed off, since the last Memoir, and the Hagiographa advanced to the middle of Proverbs. In the Sikh, the Pentateuch is just completed, and the historical books begun. In the Chinese we have just completed the Pentateuch, and are now proceeding with a second edition of the New Testament. In the Telinga the New Testament is printed as far as the Thessalonians; and we hope to have finished the volume ere this reaches you. In the Pushtoo Testament the printing is advanced as far as the first of Peter; and in the Assam and Wuch, to the Romans: while, in the Bruj Bhassa, although a delay has arisen in consequence of the distance of brother Chamberlain's station, who was superintending the version, we are preparing to proceed with the version as before. In the Kurnata we have finished Mark, and are proceeding with Luke: while in the Kunkuna, the Mooltanee, the Sindhee, the Kashmere, the Bikaneer, the Nepal, the Ooduypore, the Marwar, the Juypore, and the Khassee, not much progress in printing has been made since the last Report. As soon, however, as the Hindee and Sungscrit versions are completed, it is intended to proceed with them. These translations were never advancing more rapidly than at present. The office now furnishes our venerable editor, Dr. Carey (independently of the Chinese proofs it forwards to Dr. Marshman) with twelve proofs per week, on an average. To which may be added, that opportunities of distributing the Scriptures, when printed, are becoming more extensive.'

Copies of the New Testament, in various languages, as printed and published at Serampore, were presented by Mr. Ward at the Annual Meeting of the British and Foreign Bible Society, in 1820; and two years after, the Chinese Bible complete, the result of sixteen years labor on the part of Dr. Marshman, was presented on a similar occasion, by his eldest son, then in England. At that time, 1822, the New Testament had been printed and published in twenty-one different languages, and the work was proceeding in ten others. Four versions, after having been carried to a certain point, had been resigned to other individuals, whose local residence afforded greater facilities for completing them; and ten besides were suspended, principally because the requisite pecuniary means were wanting.

In 1819 a new station was formed in the island of Ceylon, at a place called Hangwell, about fourteen miles from Colombo. Mr. Siers removed hither, and a small church was subsequently formed under his direction. The translation of the whole Bible into Cingalese, by the united efforts of Messrs. Chater, Armour, and Clough, was completed about the end of 1822.

No part of the missionary undertakings of this society has succeeded more satisfactorily than the Jamaica mission. In 1819 two gentlemen left England for Kingston and Spanish town; a spacious chapel has been built at the former place.

In the year 1822 the number of members in the church exceeded 2,000: Mr. Knibb arrived this year to take charge of a free school, established and maintained by the congregation; and Mr. Tinson to commence a new station in a distant part of the island. A station has been also formed in the north-west part of the island, on an estate in the parish of St. James's; the owners of which had long been favorable to the instruction of their negroes.

In consequence of facilities afforded by some pious gentlemen, in the habit of trading to that quarter, the committee were induced, in 1822, to turn their attention further westward still, and to send out Mr. James Bourne as a missionary to the bay of Honduras, South America.

At home, the business of the society having become far more extensive than formerly, some alterations were made in the manner of conducting it. At the General Meeting held at Cambridge, October, 1819, it was resolved that a central committee should be formed out of the general committee, who should meet monthly, in London, for the transaction of business; and from that time the Annual Meeting of the society has been held also in the Metropolis, in the month of June. Mr. Hinton, of Oxford, in consequence of his other numerous and important engagements, had resigned the office of joint secretary, in October, 1817, on which Mr. Dyer, then of Reading, now of Battersea, was chosen assistant secretary to Dr. Ryland, and, in the following year, requested to devote himself exclusively to the service of the mission, as joint secretary. In 1820 premises were engaged for the society in London, and at length a suitable house purchased, at No. 6, Fen Court, Fenchurch Street, where its still increasing business is now carried on.

Exclusive of the Chinese, the New Testament is published and sent into circulation in twenty of the languages of India. They are:

	Commenced.	Finished at press.
1. The Bengalee, 6th edition in the press	1794	1801
The Hindee, 2d edition in the press	1802	1811
The Sungscrit, 2d edition in the press	1803	1810
The Orissa, 2d edition in the press	1803	1811
5. The Mahratta, 2d edition in the press	1804	1811
The Telinga . . .	1805	1818
The Sikh	1807	1815
The Gujuratee . .	1807	1820
The Kunkuna .	1808	1819
10. The Kurnata . . .	1808	1822
The Pushtoo or Affghan	1811	1819
The Assamee . . .	1811	1819
The Wutch or Multanee	1812	1819
The Bikaneer . . .	1813	1820
15. The Kashmeer . .	1810	1820
The Bhugulkhund .	1814	1821
The Marwar . . .	1814	1821
The Nepalee . . .	1812	1821
The Harotee . .	1815	1822
20. The Kanoja . . .	1815	1822
The Chinese, 2d edition of the gospels printed	1806	1817

From this view of the translations, and of the time whem they were respectively begun and finished at press, it will be evident that none of them have been brought hastily through the press. Seven years have formed the shortest period which has been occupied, even by those in which the terminations were the nearest akin to those in the neighbouring dialects: we have before us the most honorable and competent eastern testimony to the corrrectness of these versions.

The following list exhibits ten other versions now or recently in the Serampore press, with the period of their commencement, and the state of their progress.

	Begun.	Printed to.
The Jumboo	1814	Phil. iii. 9
The Munipoor . . .	1814	2 Cor. xiii. 4
The Mugudh	1814	Rom. xiii. 4
The Khasee	1814	Acts xix. 29
The Oojjuyunee. . . .	1815	Phil. i. 10
The Bruj	1815	2 Cor. ii. 9
The Kumaoun . . .	1815	Luke x. 23
The Bhutneer	1816	Rom. xiv. 13
The Sree-nugar, or Gurwal	1816	Luke xi. 21
The Palpa	1817	Matt. xxvii. 8

To these we may add the Kythee edition, which is the Hindee in the current Naguree character, chiefly used by the mercantile and trading classes, and in which at the earnest request of the late Mr. Chamberlain, they prepared a fount of types for the sake of printing the New Testament. We are able further to submit to the reader a brief view of what have been done by this society relative to the Old Testament, as well as the New.

State of the Versions of the Old Testament.

The Bengalee, second edition advanced to 1 Samxx.

The Sungscrit, second edition advanced to Exod. xxxi.

The Orissa, first edition finished at press in 1819.

The Mahratta, first edition printed off in 1820.

The Chinese, finished at press April 1822.

The Sikh, Pentateuch, and Historical Books, printed; Prophetic printed to Jer. xiii.

The Assamee, Pentateuch finished, Historical Books begun.

The Pushtoo or Affghan, Pentateuch advanced to Deut. xxx.

The Kashmeer, Pentateuch advanced to Gen. xxxvi.

The Telinga, Pentateuch printed; and the version resigned to the Madras Bible Society.

The Old Testament now printed off in Chinese, forms the sixth version completed here of the whole Scriptures in the different Indian languages. This was finished at press in April this year; after sixteen years of unremitting labor.

We close with a fac-simile of a printed passage, in thirteen of those eastern languages, in which the Scriptures have been published in the whole, or in part, by this Society.

TEXT.—'The people which sat in darkness saw great light,' &c.—MATT. iv. 16.

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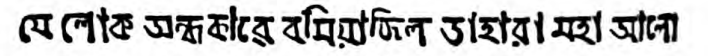
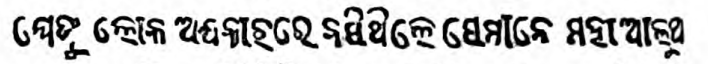
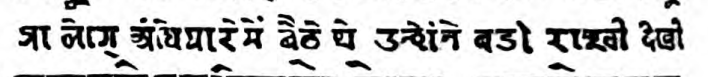


2. The Orissa.



3. The Hindoostanee.



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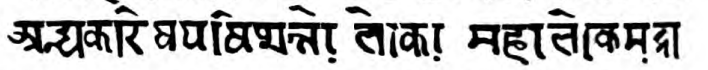

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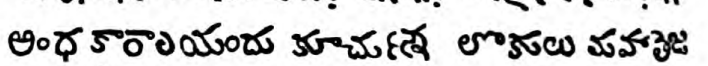
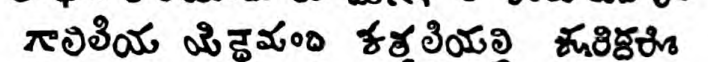


6. The Kurnata.



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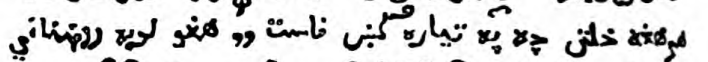

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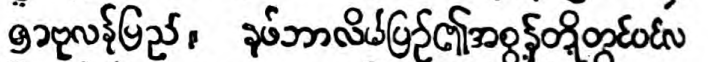

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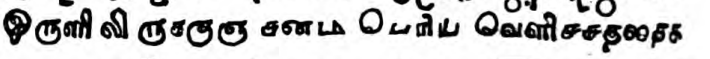

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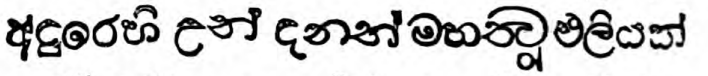

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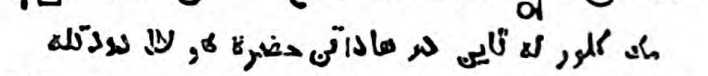
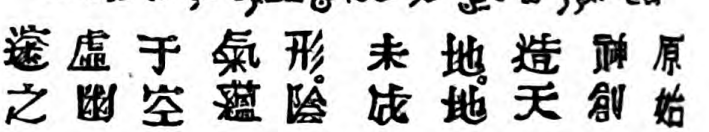
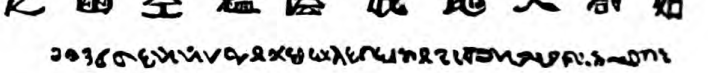


12. The Chinese.



13. The Multanee.



BAPTISTE (John Monoyer), an artist, born in Lisle in 1635, who received his education at Antwerp, and in his first years was intended for a painter of history; but his genius more strongly inclining him to the representation of flowers he applied his talents to those subjects, and became in that style one of the greatest masters. The disposition of his objects is elegant and beautiful; and his compositions are easily known in that respect. The duke of Montague employed him in conjunction with La Fosse and Rousseau, to embellish his house, now the British Museum; where are some of the finest performances of Baptist. A celebrated work of his is a looking-glass in the royal palace at Kensington, which he decorated with a garland of flowers for Queen Mary II. who sat by him during the greatest part of the time he was painting it. Baptist died in 1699, leaving a son, Anthony, who painted flowers in his father's style.

BAPTISTE (John Gaspars), born at Antwerp, was the disciple of Boschaert. During the civil war he came to England, and entered into the service of General Lambert; but after the restoration was engaged by Sir Peter Lely to paint the postures and draperies of his portraits; and he has been called Lely's Baptist. Kneller also, and Riley, employed him for the same purpose. In the hall of St. Bartholemew's hospital is a portrait of King Charles II. painted by this artist, who died in 1691.

BAPTISTIN (John Baptiste Stuk), an Italian musician, was a native of Florence. He was a good composer, but is chiefly famed as having first brought the violincello into fashion in France. He died about 1740.

BAR', *v.* & *n.*, } From the Ang.-Sax. bairra.
BAR'FUL. } beorgan, birgan, byrgan, literally to prevent, to keep out, or obstruct, to guard, to secure, to fortify, to prohibit. Chaucer once uses it in a metaphorical sense, 'covered with precious cloth and rich, *barred* (that is striped and crossed in the form of bars) and plated of gold and silver.'—*The Persones Tale.* But we meet with it in other parts of his writings, employed according to the common acceptation.

He rode but homely in a medlee cote,
Girt with a seint of silke, with *barres* small.
Chaucer.

He was short shuldered, brode, a thikke gnarre,
Ther 'nas no dore that he 'nolde heve of *barre*,
Or breke it at a renning with his hede.
Id.

He breake the *barres*, and through the timber peast
So large a hole, wherby they might discerne
The house, the court, the secret chambers eke
Of Priamus, and auncient kings of Troy.
Surrey.

Deep in the bottom of an huge great rocke
The dungeon was, in which her bound he lefte,
That neither yron *barres*, nor brasen locke,
Did need to guard from force or secret theft.
Spenser.

Hath he set bounds between their love and me?
I am their mother, who shall *bar* them from me?
Shakspeare.

My duty cannot suffer
T' obey in all your daughter's hard commands;
Though their injunction be to *bar* my doors,
And let this tyrannous night take hold upon you.
Id.

When law can do no right,
Let it be lawful, that law *bar* no wrong. *Id.*

VIOLA. I'll do my best
To woo your lady; yet, a *barrefull* strife,
Whoe'er I woo, myself would be his wife.
Id. Twelfth Night.

Ye sit like pris'ners, *barr'd* with doors and chaines,
And yet no care perpetual care restraines.
Beaumont. Of True Liberty.

Hard, thou know'st it, to exclude
Spiritual substance with corporeal *bar*. *Milton.*

These *bars* enclose that wider den,
Of those wild creatures called men. *Marvell.*

Our hope of Italy, not only lost,
But shut from ev'ry shore, and *barr'd* from ev'ry coast.
Dryden.

When you *bar* the window shutters of your lady's bed-chamber at nights, leave open the sashes, to let in air. *Swift.*

What is a greater pedant than a mere man of the town? *Bar* him the playhouses, and you strike him dumb. *Addison.*

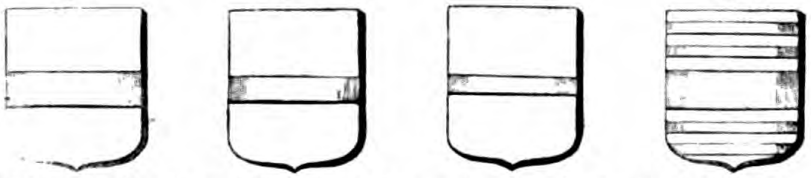
With emulation fir'd,
They strain to lead the field, top the *barr'd* gate,
O'er the deep ditch exulting bound, and brush
The thorny-twining hedge. *Somerville. The Chace.*

The folded gates would *bar* my progress now,
But that the lord of this enclos'd demesne,
Communicative of the good he owns,
Admits me to a share; the guiltless eye
Commits no wrong, nor wastes what it enjoys.
Cowper's Task.

BAR, in law, is a peremptory exception against a demand or plea brought by the defendant in an action, that destroys the action of the plaintiff for ever. It is divided into a bar to common intent, and a bar special; a bar to common intent is an ordinary or general bar, that disables the declaration or plea of the plaintiff; a bar special, is that which is more than ordinary, and falls out in the case in hand, upon some special circumstance of the fact.

BAR, in heraldry, one of the honorable ordinaries, consisting of two horizontal lines drawn across the escutcheon, as in fig. 1. The *bar* differs from the *fesse* in three particulars, namely, that it occupies a fifth part of the field instead of a third; it is not limited to any part of the escutcheon, and is never borne single. It has two diminutives, namely, the *closet* (fig. 2), which is half the bar, and the *barrule* (fig. 3), which is half the closet. Of the closet there may be five in one field; but the barrulet can be borne only in couples. *Bars-gemelles* are so called when they stand in couples, as in fig. 4. 'The field is *argent*, a fesse between two bars, gemelles *gules*, by the name of Badlemere.'

Fig. 1. Fig. 2. Fig. 3. Fig. 4.



BAR, in African traffic, is used for a denomination of price: payment being formerly made by the negroes almost wholly in iron bars.

BAR, in courts of justice, is an enclosure made with a strong partition of timber, where the council are placed to plead causes. It is also applied to the benches where the lawyers or advocates are seated, because anciently, there was a bar to separate the pleaders from the attorneys and others. Hence our lawyers, who are called to the bar, or licensed to plead, are termed barristers, an appellation equivalent to licentiate in other countries.

BAR of gold or silver, is a lump or wedge from mines, melted down into a sort of mould, and never wrought.

BARS of a horse, are the upper part of the gums between the tusks and grinders, which bear no teeth, and to which the bit is applied, and by its friction the horse is governed.

BARS, in music, are strokes drawn perpendicularly across the lines of a piece of music; used to regulate the beating or measure of musical time. The use of bars in music is a modern invention. They cannot be traced higher than the year 1574, and seem not to be in general use till about the middle of the seventeenth century. It is not easy to imagine how music in many parts could be composed without bars, or how the maxima, or large, equal to eight semibreves, could be divided into bars of one or two semibreves in each. See BATTUTA, and TIME-TABLE. A double bar implies the end of a strain. When double bars are dotted on both sides, thus, the dots imply a repetition of each strain; but if dotted only on one side, that strain only which precedes or follows the dots, is to be repeated.

BAR, in geography, (Gael. a hill or brae), the name of several places in different parts of Europe: such as,

BAR, a ci-devant duchy of France, bounded on the east by Lorraine, on the north by Luxembourg, on the west by Champagne, on the south by part of the same country and by Franche Comté; it is crossed by the Meuse from south to north, and watered by several other rivers, which render it very fertile. It was divided into four bailiages, viz. Bassigni, Bar, St. Michael, and Clermont. The chief towns are Bar-le-Duc, Clermont, St. Michael, Longwy, Pont-a-Mousson, and Stenay. In 1736 it was given to Stanislaus, then king of Poland.

BAR, a city of Poland, in Podolia, seated on the river Kiov, and strongly fortified; forty-eight miles north-west of Braclaw, and sixty-five north-east of Kaminieck.

Bar, a town in the province of Bahar, in the district of the same name, thirty-five miles E. S. E. of Patna. Long. 86° 46′ E., lat. 25° 28′ N.

Bar, a hill of Scotland, in Renfrewshire, in the parish of Kilbarchan, on the top of which are the remains of an old encampment, consisting of a semicircular parapet of loose stones towards the south, and defended on the north by perpendicular basaltic rocks. Tradition says it was an encampment of the celebrated Sir William Wallace; and the people show a pinnacle of rock where they say he sat, while he enticed the English forces into a bog at the bottom of it, where they perished. But Mr. Maxwell, the minister of the parish, concludes it to be Danish from its form, and from the silence of historians respecting this anecdote of the Scots patriot. Mr. Maxwell also mentions it as a singular fact in natural history, by no means consonant to the prevailing theories, that these perpendicular basaltes are incumbent upon coal, formerly wrought to a great extent.

Bar, or Barr, a small but thriving town of France, in the department of the Lower Rhine, sixteen miles south-west from Strasburg. It has a population of 4100 souls.

Bar-le-Mont, a town of France, in the ci-devant French Netherlands, now in the department of the North; fifteen miles south of Mons, situated on the Sambre.

Bar sur Aube, an ancient town of France, in the department of Aube, and ci-devant province of Champagne, twenty-six miles east of Troyes, famous for its excellent wines. The manufactures are soap, linen, serge, and leather. Here are also some good iron-works. It is the capital of an arrondissement, containing 44,000 inhabitants.

Bar sur Ornain, or Bar-le-Duc, a town of France, in the department of Meuse, and the ci-devant capital of the duchy of Bar. It is seated on the declivity of a hill, and divided into the higher and lower town; the lower town is watered by the rivulet Ornain, which abounds with excellent trout. The population nearly 10,000. Here are manufactures of calicoes, woollen stuffs, stockings, hats, and leather; also a good trade in grain, wood, brandy, wine, and hemp. Forty-two miles west of Nancy, and 133 east of Paris. Long. 52° 15′ E., lat. 48° 47′ N.

Bar-sur-Seine, a town of France, in Burgundy, on the Seine; formerly the capital of a county of the same name, now of an arrondissement in the department of the Aube. In it are 460 houses, and 2270 inhabitants, with manufactures of knives, leather, and woollen caps, and a trade in wine, grain, and paper. Eighteen miles south-east of Troyes, and 110 south-east of Paris. Long. 4° 27′ E., lat. 48° 7′ N.

Bars-gemel, or bars-gemelles, are diminutives of the bar, and are placed in pairs, or two and two on a shield. They derive their name from the Latin gemelli, twins.

BARA, a festival celebrated with much magnificence at Messina, and representing the assumption of the Virgin. The bara, though used as the general denomination of this festival, signifies more particularly a vast machine fifty feet high, at the top of which a young girl of fourteen, representing the Virgin, stands upon the hand of an image of Jesus Christ. Round him turn vertically, in a circle, twelve little children, which represent the seraphim; below them, in another circle, which turns horizontally, are twelve more representing the cherubim; below these a sun turns vertically, with a child at the extremity of each of the four principal radii of his circle, who ascend and descend with his rotation, yet still stand upright. Below the sun is the lowest circle, about seven feet from the ground, in which twelve boys turn horizontally without interruption: these are intended for the twelve apostles, who are supposed to surround the tomb of the Virgin at the moment when she ascends into heaven. This description of such a complication of superstitious whirligigs may nearly turn the stomachs of our delicate readers; but think of the poor little cherubim, seraphim, and apostles, who are twirled about in this procession! 'For,' says M. Houel, in his Travels through Sicily, 'some of them fall asleep, many of them vomit, and several do still worse:' but these unseemly effusions are no drawback upon the edification of the people; and nothing is more common than to see fathers and mothers soliciting with ardor for their boys and girls the pious distinction of puking at the bara. This machine is not drawn by asses or mules, but by a multitude of robust monks!

Bara, in ancient geography, 1. a small island in the Adriatic, opposite to Brundusium; the Pharos of Mela: 2. A Frith, or arm of the sea of Britannia, supposed to be the Murray frith.

Bara, or Barray, one of the Western Islands of Scotland, eight computed miles in length, and from two to four in breadth.

BARABAIAN Desert. See Barabinzians.

BARABBAS, from בַּר, a son, and אַבָּא, a father, a notorious robber and murderer, whom Pilate, wishing to save Jesus, offered for execution to the Jews; but they, instigated by their rulers, saved the murderer, and murdered the Saviour of mankind.

BARABINZIANS, a tribe of Tartars, who live on both sides the river Irtisch. They seem to derive their name from the Barabaian desert, whose lakes supply them abundantly with fish, on which, and their cattle, they chiefly subsist.

BARABRAS, a people of Lower Nubia, contiguous to Egypt. They are a distinct race from their neighbours, and of unknown origin.

BARACHAN, a creek on the western coast of Scotland, on the Ross side of the Sound of Eye, where vessels of considerable burden may anchor in safety.

BARACOA, a sea-port on the north-east coast of the island of Cuba, fifty miles north-east of St. Jago.

BARADÆUS, Jacob, or Jacob Zanzalus, a monk of the sixth century. He was a Syrian by birth, and a disciple of Eutyches and Dioscorus. He maintained that there is but one nature in Christ; and his doctrines spread so much in Asia and Africa that the Eutychians were swallowed up by that of the Jacobites, which also comprehended all the Monophysites of the east. His party made him bishop of Edessa. He died in 588.

BARAK, ברק, i. e. lightning; the son of Abinoam, of Kedesh Napthali, one of the deliverers of Israel from the oppression of the Canaanites. See Judges iv.

BARAKAN, or PARKAN, a town of Hungary, formerly fortified, in the farther circle of the Danube, where the Turks were defeated, and the town recovered by the Imperialists, who took it by storm in 1684. It is opposite to Gran, of which it is reckoned a part.

BARALIPTON, among logicians, a term denoting the first indirect mode of the first figure of syllogism. A syllogism in baralipton, is when the two first propositions are general, and the third particular, the middle term being the subject in the first proposition, and the predicate in the second. The following is of this kind:

BA. Every evil ought to be feared;
R A. Every violent passion is an evil;
LIP. Therefore something that ought to be feared is a violent passion.

BARALLOTS, in church history, a sect of heretics at Bologna, in Italy, who had all things in common, even their wives and children! Their facility in complying with all manner of debauchery made them get the name of obedientes, or compliers.

BARAN, a river rising in the Hindoo Kho mountains, and flowing through the north-east of Cabul.

BARANCA DE MALAMBO, a town of Terra Firma in America, with a bishop's see and a good haven. It is a place of great trade, seated on the river Magdalena, seventy-five miles north of Carthagena.

BARANGI, officers among the Greeks of the lower empire, who kept the keys of the city gates where the emperor resided. Codinus says, they stood guard at the door of the emperor's bed-chamber and dining-room. Codinus and Curopalata observe, that the name is English, formed from bar, to shut; and that the barangi were Englishmen by country; Anglo-Danes, who, being driven out of England, were received into the service of the emperor of Constantinople, and made guards or protectors of his person. Whence they are called in Latin (Cujaccius), protectores; by others, securigeri, as being armed with securis, a battle-axe. Codinus adds, that they still spoke the English tongue. Anna Comnena says, the barangi came from the island Thule; by which is doubtless meant our island. Yet Nicetas makes them Germans; a mistake easy to be made at that distance, considering the relation the Anglo-Saxons bore to Germany. There were barangi as early as the emperor Michael Paphlagonius, in 1035, as appears from Cedrenus; but they were then only common soldiers, not a life-guard. Their commander was called ακολοθος, importing a person who always followed the emperor.

BARANTA, a West Indian balsam.

BARANYAT, a county of Lower Hungary, bounded by the Danube, Sclavonia, and the counties of Tolna and Schumeg. It abounds in grain, fruit, wine, cattle, and game. Its capital is Funfkirchen, and it has a population of 140,000 persons.

BARANZANO (Redemptus), a Barnabite monk, born in Piedmont in 1590. He became professor of philosophy and mathematics at Anneci, and was highly esteemed by lord Bacon, who corresponded with him. He died at Montargis in 1622. He wrote, 1, Uranoscopia, seu Universa Doctrina de Cœlo, fol. 1617; 2. Campus Philosophicus, 8vo. 1620; 3. De Novis Opinionibus Physicis, 8vo. 1617.

BARA-PICKLET, bread made of fine flour kneaded with barm, which makes it very light and spongy: bara being the Welch for bread.

BARATHIER (Barthelemy), an Italian lawyer of the fifteenth century. He was born at Placentia, and became professor at Pavia and Ferrara. He published a New Digest of the Feudal Law, at Paris, in 1611.

BARATHRA, a name of the Serbonian bog.

BARATHRO, a glutton. See BARATHRUM.

BARATHRON, solemn games held at Thesprotia.

BARATHRUM, βαραθρον, in antiquity, a deep dark pit at Athens, into which condemned persons were cast headlong. It had sharp spikes at the top that no man might escape out; and others at the bottom, to pierce and torment such as were cast in. Its depth and capaciousness made it to be applied proverbially to a covetous person, a glutton, called barathro by the Romans, and a common prostitute.

BARATHRUM, in physiology, a baleful cavern, inaccessible on account of its fœtid, or poisonous fumes; styled by others fossa charonia.

BARATIER (Philip), a most extraordinary instance of early and rapid exertion of mental faculties. This surprising genius was the son of Francis Baratier, minister of the French church at Schwabach, near Nuremberg, where he was born January 10, 1721. The French was his mother-tongue, and High Dutch the language of the place; but his father talking Latin to him, that language became as familiar to him as the rest: so that without knowing the rules of grammar, he, at four years of age, talked French to his mother, Latin to his father, and High Dutch to the maid, or neighbouring children; and all this without mixing or confounding the respective languages. About the middle of his fifth year he acquired Greek in like manner; so that in fifteen months he perfectly understood all the Greek books in the Old and New Testament, which he readily translated into Latin. When he was five years and eight months old, he entered upon Hebrew; and in three years was so expert in the Hebrew text, that from a bible without points, he could give the sense of the original in Latin or French; or translate extempore the Latin or French versions into Hebrew, almost word for word; and had all the Hebrew psalms by heart. He composed, at this time, a dictionary of rare and difficult Hebrew words, with critical remarks and philosophical observations, in about 400 pages in 4to; and, about his tenth year, amused himself for twelve months with the rabbinical writers. With these he intermixed a knowledge of the Chaldaic, Syriac, and Arabic; and acquired a taste for divinity and ecclesiastical antiquity, by studying the Greek fathers and councils of the first four ages of the church. In the midst of these occupations, a pair of globes

coming into his possession, he could, in ten days time, resolve all the problems on them; and in about three months (in January, 1735), devised his project for the discovery of the longitude, which he communicated to the Royal Society at London and the Royal Academy of Sciences at Berlin. In June, 1731, he was matriculated in the university of Altorf; and at the close of 1732, he was presented by his father at the meeting of the reformed churches of the circle of Franconia; who, astonished at his wonderful talents, admitted him to assist in the deliberations of the synod; and to preserve the memory of so singular an event, it was ordered to be registered in their acts. In 1734 the margrave of Brandenburgh Anspach granted this young scholar the use of whatever books he wanted from the Anspach library, together with a pension of fifty florins, which he enjoyed three years; and his father receiving a call to the French church at Stettin, in Pomerania, young Baratier was, on the journey, admitted M. A. with universal applause at the university of Halle; at Berlin he was honored with several conversations with the king of Prussia, and was received into the royal academy. Towards the close of his life he acquired a taste for medals, inscriptions, and antiquities; metaphysical enquiries, and experimental philosophy, intervening occasionally between these studies. He wrote several essays and dissertations; made astronomical remarks and laborious calculations; and took great pains towards a history of the heresies of the anti-trinitarians, and of the thirty years' war in Germany. His last publication, which appeared in 1740, was on the succession of the bishops of Rome. The final work he was engaged in, and for which he had collected many materials, was Enquiries concerning the Egyptian Antiquities. But the substance of this blazing meteor was now nearly exhausted; he was always weak and sickly, and died October 5, 1740, aged nineteen years, eight months, and sixteen days. He published eleven different pieces, and left twenty-six MSS. on various subjects, the contents of which may be seen in his life, written by M. Formey, professor of philosophy at Berlin.

BARATOR, or BARRETOR, in law. Lambert derives the word from the Latin balatro, a vile knave; but the proper derivation is from the French barrateur, i. e. a deceiver; and this agrees with the description of a common barretor in lord Coke's report, viz. that he is a common mover and maintainer of suits in disturbance of the peace, and in taking and detaining the possession of houses and lands, or goods, by false inventions, &c. And, therefore, it was adjudged that the indictment against him ought to be in these words, viz. that he is communis malefactor, calumniator et seminator litium et discordiarum inter vicinos suos, et pacis regis perturbator, &c. It is said that a common barretor is the most dangerous oppressor in the law, for he oppresseth the innocent by color of law, which was made to protect them from oppression.

BARATRY, or BARRATRY, in a shipmaster, is his cheating the owners. If goods delivered on ship-board are embezzled, all the mariners ought by the maritime law, to contribute to the satisfaction of the party that lost his goods, and the cause is to be tried in the admiralty. In a case where a ship was insured against the baratry of the master, &c. and the jury found that the ship was lost by the fraud and negligence of the master, the court agreed, that the fraud was baratry, though not named in the covenant; but that negligence was not.

BARATRY, or BARRETRY, from baraterie, Fr. fraud; in law, is the offence of frequently stirring up suits and quarrels between his majesty's subjects, either at law or otherwise. The punishment for this offence, in a common person, is by fine and imprisonment: but if the offender, as is too frequently the case, belongs to the profession of the law, the barator who is thus able as well as willing to do mischief, ought always to be disabled for practising for the future. And, indeed, it is enacted by statute 12 Geo. I. c. 29, that if any one having been convicted of forgery, perjury, subornation of perjury, or common barretry, shall practice as an attorney, solicitor, or agent in any suit, the court, upon complaint, shall examine it in a summary way; and if proved, shall direct the offender to be transported for seven years. Hereunto also may be referred another offence of equal malignity and audaciousness, that of suing another in the name of a fictitious plaintiff, either one not in being at all, or one who is ignorant of the suit. This offence, if committed in any of the king's superior courts, is left, as a high contempt, to be punished at their discretion: but in courts of a lower degree, where the crime is equally pernicious, but the authority of the judges not equally extensive, it is directed by statute 8 Eliz. c. 2, to be punished by six months imprisonment, and treble damages to the party injured.

BARATRY is also used for bribery or corruption in a judge, giving a false sentence for money.

BARATRY is also used, in middle age writers, for fraud or deceit in making of contracts, sales, or the like.

BARATZ, Turkish, letters-patent granted by the Turkish emperors to the Greek patriarchs, bishops, &c. for the exercise of their ecclesiastical functions. This baratz gives the bishops full power and authority to establish and depose the inferior clergy, and all other religious persons; to grant licenses for marriages, and issue out divorces; to collect the revenues belonging to the churches; to receive the pious legacies bequeathed to them; in short, to enjoy all the privileges and advantages belonging to their high station: and all this (as it is expressed in the baratz itself), 'according to the vain and idle ceremonies of the Christians.'

BARB', *v.* & *n.*, BARB'ATED, BARB'ED, BARB'ER, *v.* & *n.*, BARB'ET. Fr. *barbier*, Dut. *barbeeren*, Lat. *barba*. The etymology doubtful. It signifies a *beard*; hence it has grown to mean a covering and protection; as armour and trappings for horses, a hood or muffler for the head and lower part of the face and shoulders. It has also been extended in its application to the jags or reversed points of an arrow or hook. To barb, is to cut, to shave, or to dress out the beard. Barb, contracted from Barbary, signifies a Barbary horse

For of a suertie the duke strake the kyng on the brow, right under the defence of the hedpece, on the very coyffe scull or bassenet pece, whereunto the *barbet* for power and defence is charneld.

Hall. King Henry VIII. fol. 133.

But let be this, and tell me how you fare,
Do way your *barbe*, and shew your face bare,
Do way your boke, rise up and let us dance,
And let vs done to May some observaunce.

Chaucer. Troilus and Creseide.

Two manner of arrows heades sayth Pollux, was used in olde time. The one he calleth ὀγκιος, describinge it thus, having two points or *barbes*, looking backwarde to the stele and the feathers, which surely we call in Englishe, a brode arrowe head or a swalowe tayle. *Roger Ascham. Toxophilus.*

Thanked they were from the senate, and presents were sent unto them, to wit, a chaine of gold weighing two pounds; certain golden cups of foure pounde weight; a brave courser *barbed* and trapp'd, and an horseman's armour. *Holland. Livius.*

Shave the head, and tie the beard, and say it was the desire of the penitent to be so *barbed* before his death. *Shakspeare.*

Grim-visag'd war hath smooth'd his wrinkled front;
And now—instead of mounting *barbed* steeds,
To fright the soul of fearful adversaries,
He capers nimbly in a lady's chamber,
To the lascivious pleasing of a lute. *Id.*

Their horses were naked, without any *barbs*; for albeit many brought *barbs*, few regarded to put them on. *Hayward.*

The stooping scythe-man, that doth *barb* the field,
Thou mak'st wink-sure; in night all creatures sleep.

Marston. Malcontent.

No drizzling show'r,
But rattling storm of arrows, *barb'd* with fire.

Milton.

Thy boisterous looks
No worthy match for valour to assail,
But by the *barber's* razor best subdued. *Id.*

A warriour train
That like a deluge pour'd upon the plain;
On *barbed* steeds they rode, in proud array,
Thick as the college of the bees in May.

Dryden's Fables.

Nor less the Spartan fear'd before he found
The shining *barb* appear above the wound. *Pope.*

Watermen brawl, coblers sing; but why must a *barber* be for ever a politician, a musician, an anatomist, a poet, and a physician? *Talter*, No. 34.

I cannot lay so much stress on a plate and description, given by Plot, of a dart uncommonly *barbated*. *Warton.*

To make a fine gentlemen several trades are required, but chiefly a *barber*. You have undoubtedly heard of the Jewish champion, whose strength lay in his hair; one would think the English were for placing all wisdom there; to appear wise nothing is more requisite here than for a man to borrow hair from the heads of all his neighbours, and clap it like a bush on his own.

Goldsmith. Citizen of the World.

Straight as above the surface of the flood,
They wanton rise, or urg'd by hunger leap,
Then fix, with gentle twitch, the *barbed* hook.

Thomson.

Horses brought from Barbary are commonly of a light slender size, and very dear, usually chosen from stallions. *Barbs*, it is said, may die, but never grow old; the vigour and mettle of *barbs* never cease but with their life. *Farrier's Dictionary.*

They are ill-built,
Pin-buttock'd like your dainty *barbaries*,
And weak i' the pasterns.

Beaumont and Fletcher.

But why should you who still succeed,
Whether with graceful act you lead
The fiery *barb*, or with as graceful motion tread
In shining balls, where all agree
To give the highest praise to thee.

Verses to Lansdowne.

Barb is also used for the Barbary pigeon, called by Moore the columba numidica. This bird is but a small pigeon, and has a very short beak like a bullfinch, with a small water, and a naked circle of tuberose red flesh round the eyes; the iris of the eye is of a pearl color, and the broader and redder this circle round them is, the more the pigeon is valued; but this is always narrow while they are young, and does not arrive at its full breadth till they are four years old. Some of this species have a tuft of feathers behind their head, and others not. The red circle round their eyes grows pale and whitish if they become sick, but always recovers its redness as they grow well. Their proper color is black or dun. There are likewise pied ones; but they are of a mixed breed and not so valuable.

BARBA, in botany, a species of pubes, or down, with which the surface of some plants is covered. The term was invented by Linnæus, and by its application in the Species Plantarum, seems to signify a tuft or bunch of strong hairs terminating the leaves. The mesembryanthemum barbatum, a species of marygold, furnishes an example. The word is also often used in composition to form the trivial names of several plants.

Barba Aron, in botany, a name given by some authors to the common great house-leek.

Barba Capræ, in botany. See Spiræa. Of this genus Mr. Tournefort allows only one species, the common barba capræ, or, as it is called by some, drymopogon.

Barba Jovis, in botany, a species of anthyllis.

Barba (Alvarez Alonzo), curate of St. Bernard de Potosi, in the seventeenth century. He was author of a curious book on metallurgy, published at Madrid in 1620, quarto, and again in 1730, abridged in French, 12mo.

BAR'BACAN, *n. s.* Fr. *barbacane*, Span. *barbacana*. A fortification placed before the walls of a town. A fortress at the end of a bridge. An opening in the wall through which the guns are levelled.

Within the *barbacan* a porter sate,
Day and night duly keeping watch and ward:
Nor wight nor word mote pass out of the gate,
But in good order, and with due regard.

Faerie Queene.

Barbacan, or Barbican. See Castle.

BARBADENSIS, in conchology, a species of voluta, inhabiting the American seas. The shell is an inch and a half long, tapering; color reddish, with very fine transverse striæ.

Barbadensis, in ornithology, a species of psittacus, the ash-fronted parrot of Latham. This bird is green; about the size of a pigeon, and inhabits Barbadoes.

BARBADILLO (Alphonsus Jerom de Salas), a Spanish dramatic writer, born at Madrid. He

was author of several comedies, and of the Adventures of Don Diego de Noche, 1624, 8vo.

BARBADINO, a learned Portuguese. He wrote and published at Paris, in 1746, a book in his native language, On the present state of Literature in Portugal. This work was attacked with great severity by a Portuguese jesuit, and defended by Don Joseph de Maymo.

BARBADO, a district in the island of Arbe, which produces excellent wines. See ARBE.

BARBADOES, the most easterly of all the Carribee Islands, subject to Great Britain, and, according to the best geographers, lying between 59° 50′ and 62° 2′ W. long., and between 12° 56′ and 13° 16′ N. lat. It is seventy miles from St. Vincent's. Its extent is not certainly known; but, according to Edwards, the length of the island is twenty-one miles, and its breadth fourteen. From the returns to parliament in 1811, it appears that the population of its different parishes was at that time as follows:—viz.

Parishes.	Whites.	Free color.	Slaves.
St. Michael .	5405	1551	12,198
Christ Church	1570	66	9234
St. Philip .	1510	212	9682
St. John . .	1148	887	58
St. Joseph .	1066	77	3104
St. Andrew .	571	165	3249
St. Lucy . .	1043	34	5282
St. Peter . .	1356	223	5725
St. James .	708	33	4295
St. Thomas .	773	31	4003
St. George .	1139	113	5428
	16,289	3392	62,258

The whole population of the island, therefore, was 81,939; and from this statement it appears that the number of slaves had been nearly stationary during a period of thirty years, i. e. from 1781 to 1811; for it was affirmed by Mr. Wilberforce, in the House of Commons, in the course of the debates on the slave trade, that in the former of these years there were 63,248 slaves on the island; in 1786 the number was 62,115; and in 1811 they were, as we see, 62,258. Barbadoes is supposed to have attained the summit of prosperity more than a century ago; and between the great planters and the people of color here there is a numerous and remarkable class of inhabitants, descended from the original settlers, who have no precise knowledge when their ancestors arrived at the island. These, consequently, consider it as their country, and do not look back, therefore, like the planters or the negroes, to early associations or other scenes as their home. At a distance, Barbadoes presents a brown and nearly uniform surface; and the West Indians generally think it a very flat country; but on a nearer approach the prospect improves, and the scenery becomes more diversified. The ground rises in singular and almost regular ridges from the shore. Rugged acclivities of about 100 feet each are separated by plains or terraces, nearly half a mile broad, and these, highly cultivated, form a strong contrast with the black rocky precipices and bold promontories, projecting over deep ravines covered with dark foliage, by which they are surrounded.

When Barbadoes was first settled by the English, in 1605, few or no quadrupeds were found upon it except hogs, which had been left there by the Portuguese. For convenience of carriage to the sea-side, some of the planters at first procured camels, which undoubtedly would, in all respects, have been preferable to horses for their sugar and other works; but the nature of the climate disagreeing with that animal, it was found impossible to preserve the breed. Some gentlemen of small fortune in England resolved at this time to become adventurers thither. The trees were large, and of a wood so hard and stubborn that it was with great difficulty they could clear as much ground as was necessary for their subsistence; but by unremitting perseverance they brought it to yield them a tolerable support. They found that cotton and indigo agreed well with the soil; and that tobacco, which was beginning to come into repute in England, answered tolerably well. These prospects, together with the storm between the king and parliament, which was beginning to break out in England, induced many to transport themselves into this island: and so great was the increase of people in Barbadoes, within twenty-five years after its first settlement, that in 1650 it contained more than 50,000 whites, and a much greater number of negro and Indian slaves. They now applied for horses to Old and New England: from the former they had those that were fit for show and draught; from the latter those that were proper for mounting their militia, and for the saddle. They had likewise some of an inferior breed from Curassao, and other settlements. They are reported to have had their first breed of black cattle from Bonavista and the Isle of May; they now breed upon the island, and often do the work of horses. The sugar, which soon after this was cultivated, rendered them extremely wealthy. The number of slaves, therefore, was still augmented; and in 1676 it is supposed that they amounted to 100,000, which, together with 50,000 whites, made 150,000 on this small spot: a degree of population unknown in Holland, in China, or any other part of the world most renowned for numbers. At this time Barbadoes employed 400 sail of ships, one with another 150 tons, in their trade. Their annual exports in sugar, indigo, ginger, cotton, and citron-water, were above £350,000; and their circulating cash at home was £200,000. Such was the increase of population, trade, and wealth, in the course of fifty years. The asses here are very serviceable in carrying burdens to and from the plantations. The hogs of Barbadoes are finer eating than those of Britain, but the few sheep they have are not near so good. They likewise have goats, which when young are excellent food. Racoons and monkeys are also found here in great abundance. A variety of birds are produced on Barbadoes, of which the humming-bird is the most remarkable. Wild fowl do not often frequent this island; but sometimes

teal are found near their ponds. A bird which they call the man of war, is said to meet ships at twenty leagues from land, and their return is to the inhabitants a sure sign of the arrival of these ships. When the wind blows from the south and south-west they have flocks of curlews, plovers, snipes, wild pigeons, and wild ducks. The wild pigeons are very fat and plentiful at such seasons, and rather larger than those of England. The tame pigeons, pullets, ducks, and poultry of all kinds, that are bred at Barbadoes have also a fine flavor, and are accounted more delicious than those of Europe. Their rabbits are scarce; they have no hares; and the few deer they have are kept as curiosities. The insects of Barbadoes are not venomous, nor do either their snakes or scorpions ever sting. The mosquitoes are troublesome, and bite; but are more tolerable in Barbadoes than on the continent. Various other insects are found on the island, some of which are troublesome, but in no greater degree than those that are produced by every warm summer in England. Oranges and lemons grow in Barbadoes in great plenty, and in their utmost perfection. The lemon juice here has a peculiar fragrancy. The citrons of Barbadoes afford the best drams and sweetmeats of any in the world, the Barbadoes ladies excelling in the art of preserving the rind of the fruit. The pine-apple is also a native of Barbadoes, and grows there to much greater perfection than it can be made to do in Europe. A vast number of different trees, peculiar to the climate, are also found to flourish in Barbadoes in great perfection, such as the aloe, mangrove, calabash, cedar, cotton, ginger, plantains, guavas, mastic, &c. Here likewise are produced some sensitive plants, with a good deal of garden stuff. Barbadoes is well supplied with fish; and some caught in the sea surrounding it are almost peculiar to itself, such as the parrot-fish, snappers, gray cavallos, terbums, and coney-fish. The mullets, lobsters, and crabs, caught here are excellent; and the green turtle is perhaps the greatest delicacy that ancient or modern luxury can boast of. At Barbadoes this delicious shell-fish seldom sells for less than a shilling a pound, and often for more. There is found in this island a kind of land-crab which eats herbs whereever it can find them, and shelters itself in houses and hollows of trees. According to report they are a shell-fish of passage; for in March they travel to the sea in great numbers. See CANCER.

Barbadoes is considered by some writers as having its fertility diminished by long cultivation; and its produce is, therefore, thought to be little in proportion to the quantity of land. The soil chiefly rests upon a basis of calcareous rock, formed of madripores and other marine concretions. In some places it is composed of a deep black mould; red earth, of the same kind as in Jamaica, is also found, and sometimes the surface consists of a species of light white earth, which is chiefly indurated argil, bleached by exposure. Barbadoes on the whole must be considered as an important possession: its situation renders it the key to the West Indies; and its fine bay affords an excellent rendezvous for shipping, while the salubrity of its climate exceeds that of most of the other West India islands. But it has been thought to decline considerably since the year 1787, a circumstance ascribed to the dreadful succession of hurricanes with which it has been visited. The capital of the island was scarcely risen from the ashes to which it had been reduced by fire, when it was torn from its foundations, and the whole country made a scene of desolation by the storm of the 10th of October, 1780. Above 4000 of the inhabitants miserably perished, and the damage of property was computed at above one million sterling. Independent of those sudden calamities, arising from the fury of the elements, its inhabitants are also subject to a distressing malady, in the form of an elephantiasis, so peculiar to this island that it has obtained the appellation of the Barbadoes disease. Dr. Pinckard, however, describes the heat as less inconvenient than he expected. In the harbour, and placed in the shade, the thermometer seldom rose higher than 84°, and never exceeded 86°. The inhabitants may be considered in three classes, viz. the masters, white servants, and blacks. The former are either English, Scots, or Irish; but the great encouragement given by government to the peopling this and other West India islands, induced some Dutch, French, Portuguese, and Jews, to settle among them with their estates; by which, after a certain time, they acquire the rights of naturalization in Great Britain. The white servants, whether by covenant or purchase, are said to live more easy lives than the day-laborers in England; and when they come to be overseers, their wages and other allowances are considerable. The earliest planters of Barbadoes were reproached with cruelly forcing into slavery the Indians of the neighbouring continent; and the history of Inkle and Yarico, which Mr. Addison, in his Spectator, has recorded for the detestation of mankind, took its rise in this island. For the treatment of the negro slaves in this and other islands, see NEGRO, SLAVE, and WEST INDIES. St. Vincent may be seen from Barbadoes in a clear day. It is twenty-five miles only from St. Lucia; twenty-eight south-east from Martinico; sixty north-east from Trinidad; and 100 south-east from St. Christopher.

BARBADOES, FLOWER-FENCE. See POINCIANA.

BARBADOES TAR; a bituminous substance, differing little from the petroleum floating on several springs in England and Scotland. It is a mineral fluid of the nature of the thicker fluid bitumens, of a nauseous bitterish taste, very strong and disagreeable smell, found in many parts of America, trickling down the sides of the mountains, and sometimes floating on the surface of the waters. It has been greatly recommended in coughs, and other disorders of the breast and lungs.

BARBANA, a district and village of the late maritime Austria, in the province of Istria, seated on the Arza, with two forts.

BARBARA, in logic, the first mode of the first figure of the syllogisms. A syllogism in barbara is that whereof all the propositions are universal and affirmative; the middle term being the subject in the first proposition, and attribute or predicate in the second.—Example:

BAR Whoever suffers a man to starve, whom he is able to sustain, is a murderer:
BA Whoever is rich, and refuseth to give alms, suffers those to starve, whom he is able to sustain:
RA Therefore, whoever is rich, and refuses to give alms, is a murderer.

BARBARA, sister and successor of Zingha, queen of Angola.

BARBARA, ST. an island on the coast of Brasil.

BARBARA, ST. the capital of New Biscay.

BARBARANO, a district of maritime Austria, in the Vicentino, on the banks of the Bacchiglione, among the Berean hills, containing one town, of the same name, &c., and fifteen populous villages.

BARBARIANI. See BARBELICOTÆ.

BARBARICARII, in antiquity, 1. artists, who, with threads of divers colors, expressed the figures of men, animals, &c. or, whose business was to gild and decorate shields and helmets with gold and silver. They were so called, because they learned these arts from the Phrygians, who were particularly denominated barbarians, in regard of their opposition to the Greeks. The name is sometimes also written branbaricarri. 2. Soldiers, or officers, who wore masks and vizards thus adorned with gold and silver.

BARBARICUM, in ancient writers, 1. A military shout raised by the soldiers on point of engagement; so called from the barbarians, in whose armies this method much prevailed: 2. A war or expedition undertaken against the barbarians; Quousque ad ipsum tempus quo barbaricum exortem est inter nos et vos: 3. An armory, or magazine, wherein the Greek emperors kept the spoils taken from the barbarians.

BARBARICUM, in botany, an appellation given by the modern Greeks to rhubarb; so called from the sinus barbaricus, by the way of which this root was first brought to them.

BARBARICUS, in entomology, a species of cimex (reduvius) of a black color; thorax and wing-cases obscure ferruginous, and a little white line on the middle of the scutellum. A native of Barbary. Gmelin.

BARBARICUS, in ornithology, a species of rallus that inhabits Barbary; the Barbary rail of Latham; and, 2. A species of turdus, of a green color, with the breast spotted with white; rump and tip of the tail yellow. It is the grive bassette de Barbarie of Buffon, and the Barbary thrush of Linnæus.

BARBARIES, that rudeness of mind wherein the understanding is neither furnished with useful principles, nor the will with good inclinations.

BAR'BARIZE, BAR'BARISM, BARBA'RITY, BARBA'RIAN, *n.* & *adj.* BARBA'RICK, *n.* & *adj.* BAR'BAROUS, BAR'BAROUSLY, BAR'BAROUSNESS. Gr. βαρβαρος, Lat. *barbarus*, of uncertain etymology, applied to any nation, person, or thing, which indicates a want of culture. It is opposed in all respects to civilisation. It seems to have signified at first only foreign or a foreigner. The Greeks applied it to all nations but themselves, and conveyed by it an idea of disparagement and contempt. It is now applied to every species of wildness, fierceness, and cruelty; to untaught savages; to monsters without pity; to ignorance of arts and want of learning; to inaccuracies, vulgarisms, impurities of speech and language; and to incivility of manners. Bruce has shown, that *barbarick*, *barbarine*, and *barberin*, are names derived from *Berber* or *Barbar*, the native name of the coast of the troglodytæ, ichthyophagi, and shepherds. It goes down the whole western coast of the Red Sea. The Egyptians hated and feared them. It was therefore in Egypt a term both of dread and contumely; in which sense it passed to the Greeks, and from them to the Romans. To *barbarize*, is to reduce to a state of *barbarism*; to make, or cause to be made, fierce, cruel, and uncivilised.

Nor were the Corinthians proude only by reason of their welthe, but also because they were learned in the Grecians' philosophy, and therefore despised they suche as were not learned therein as rude and *barbarous*. *Udall.*

What need I say more to you? What ear is so *barbarous*, but hath heard of Amphialus? *Sidney.*

The doubtful damsel dare not yet commit
Her single person to their *barbarous* truth.
Spenser. Faerie Queene.

I have for *barbarism* spoke more
Than for that angel knowledge you can say.
Shakspeare.

Thou art a Roman; be not *barbarous*. *Id.*

No joyful tongue gave him his welcome home;
But dust was thrown upon his sacred head;
Which with such gentle sorrow he shook off,
His face still combating with tears and smiles,
The badges of his grief and patience,
That had not God for some strong purpose steel'd
The hearts of men, they must perforce have melted,
And *barbarism* itself have pitied him. *Id.*

I would they were *barbarians*, as they are,
Though in Rome littered. *Id. Coriolanus.*

Moderation ought to be had in tempering and managing the Irish, to bring them from their delight of licentious *barbarism* unto the love of goodness and civility. *Spenser's Ireland.*

Divers great monarchies have risen from *barbarism* to civility, and fallen again into ruin.
Davies on Ireland.

A *barbarous* country must be broken by war, before it be capable of government; and when subdued, if it be not well planted, it will eftsoons return to *barbarism*. *Id.*

He left governor, Philip, for his country a Phrygian, and for manners more *barbarous* than he that set him there. *Mucr.*

Our groaning country bled at every vein,
When murders, rapes, and massacres prevail'd,
When churches, palaces, and cities blaz'd,
When insolence and *barbarism* triumph'd,
And swept away distinction. *Rowe.*

By their *barbarous* usage, he died within a few days, to the grief of all that knew him. *Clarendon.*

And they did treat him with all the rudeness, reproach, and *barbarity*, imaginable. *Id.*

The *barbarousness* of the trial, and the persuasives of the clergy, prevailed to antiquate it.
Hale's Common Law.

The gorgeous East, with richest hand,
Show'rs on her kings *barbarick* pearl and gold.
Paradise Lost.

Next Petrarch follow'd, and in him we see
What rhyme, improv'd in all its height, can be;
At best a pleasing sound, and sweet *barbarity*.
Dryden.

They who restored painting in Germany, not having those reliques of antiquity, retained that *barbarous* manner. *Id.*

Latin expresses that in one word, which either the *barbarity* or narrowness of modern tongues cannot supply in more. *Id.*

The genius of Raphael having succeeded to the times of *barbarism* and ignorance, the knowledge of painting is now arrived to perfection.
Id. Dufresnoy, Preface.

The language is as near approaching to it, as our modern *barbarism* will allow; which is all that can be expected from any now extant.
Id. Juvenal, Dedication.

The eastern front was glorious to behold,
With diamond flaming, and *barbarick* gold.
Pope.

Some felt the silent stroke of mould'ring age,
Barbarian blindness. *Id.*

We *barbarously* call them blest,
While swelling coffers break their owner's rest.
Stepney.

Excellencies of musick and poetry are grown to be little more, but the one fiddling, and the other chiming; and are indeed very worthy of the ignorance of the friar, and the *barbarousness* of the Goths.
Temple.

Proud Greece all nations else *barbarians* held,
Roasting her learning all the world excell'd.
Denham.

There were not different gods among the Greeks and *barbarians*. *Stillingfleet.*

But with descending show'rs of brimstone fir'd,
The wild *barbarian* in the storm expir'd. *Addison.*

She wishes it may prosper; but her mother used one of her nieces very *barbarously*. *Spectator.*

Thou fell *barbarian*,
What had he done? What could provoke thy madness
To assassinate so great, so brave a man?
A. Phillips.

This moon, which rose last night, round as my shield,
Had not yet fill'd her horns, when by her light,
A band of fierce *barbarians*, from the hills,
Rush'd like a torrent down upon the vale,
Sweeping our flocks and herds. *Home.*

The *barbarians* of Germany, still faithful to the maxims of their ancestors, abhorred the confinement of walls, to which they applied the odious names of prisons and sepulchres; and fixing their independent habitations on the banks of rivers, the Rhine, the Moselle, and the Meuse, they secured themselves against the danger of a surprise, by a rude and hasty fortification of large trees, which were felled and thrown across the roads. *Gibbon.*

We shall be *barbarized* on both sides of the water, we do not see one another now and then, we shall sink into surly brutish Johns, and you will degenerate into wild Irish.
Burke. Letter to Sir C. Bingham.

That saddening hour when bad men hotlier press,
But these did shelter him beneath their roof,
When less *barbarians* would have cheer'd him less,
And fellow-countrymen have stood aloof—
In aught that tries the heart, how few withstand the proof!
Byron. Childe Harold.

We retain from a preceding work of this kind an illustration of this subject; not the most glaring, perhaps, which has happened in the same quarter of the world; as it displays at once the savage cruelty of a man bred among Christians, and the noble disinterested friendship and true greatness of soul, in those too often considered barbarians. A planter in Virginia, who was owner of a considerable number of slaves, instead of regarding them as human creatures, and of the same species with himself, used them with the utmost cruelty, whipping and torturing them for the slightest faults. One of these, thinking any change preferable to slavery under such a barbarian, attempted to make his escape among the mountain Indians; but unfortunately was taken and brought back to his master. Poor Arthur (this was his name) was immediately ordered to receive 300 lashes. These were to be given him by his fellow slaves, among whom there happened to be a negro whom the planter had purchased on the preceding day. This slave, the moment he saw the unhappy wretch destined to the lashes, rushed forward, clasped him in his arms, and embraced him with the greatest tenderness: the other returned his transports, and nothing could be more moving than their mutual bemoaning each other's misfortunes. Their master was soon given to understand that they were countrymen and intimate friends; and that Arthur had formerly, in a battle with a neighbouring nation, saved the life of his friend at the expense of his own. The newly purchased negro threw himself at the planter's feet, with tears, beseeching him, in the most moving manner, to spare his friend, or at least to permit him to undergo the punishment in his stead, protesting he would rather die ten thousand deaths than lift his hand against him. But the haughty planter, looking on this as an affront to the absolute power he pretended over him, ordered Arthur to be immediately tied to a tree, and his friend to give him the lashes; telling him that for every lash not well laid on, he should himself receive a score. The negro, amazed at a barbarity so unbecoming a human creature, with a generous disdain refused to obey him, at the same time upbraiding him with his cruelty; upon which, the planter turning all his rage on him, ordered him to be immediately stripped, and commanded Arthur, to whom he promised forgiveness, to give his countryman the lashes which he himself had been destined to receive. This proposal was heard with scorn, each protesting he would rather suffer the most dreadful torture than injure his friend. This generous conflict, which must have raised the strongest feelings in a breast susceptible of pity, did but the more inflame the monster, who now determined they should both be made examples of, and, to satiate his revenge, was preparing to begin with Arthur, when the negro drew a knife from his pocket, stabbed the planter to the heart, and, at the same time struck it to his own, rejoicing with his last breath, that he had avenged his friend, and rid the world of such a monster.—*Encyclo. Perthensis.*

BARBARISM, a name applied by St. Epiphanius, to the most ancient of the four primitive religions; that which worshipped hills, trees, and fountains.

BARBAROLOGIA, barbarology, a word used

by Isidore, to express that species of writing, wherein foreign words are adopted, or as he styles it, intruded into the Latin language.

BARBAROSSA (Aruch), and his brother Hayradin, were famous corsairs, the sons of a potter in the isle of Lesbos; who being of a restless and enterprising spirit, left their father's employment, and joined a crew of pirates. They soon distinguished themselves by their zeal and activity, and, becoming masters of a small brigantine, they carried on their depredations with such success and conduct, that they were soon possessed of twelve galleys, besides smaller vessels. Of this fleet Aruch, the elder brother, was admiral, and Hayradin the second in command; they called themselves the friends of the sea, and the enemies of all who sailed upon it; and their names became terrible, from the straits of the Dardanelles to those of Gibraltar. With such a power they wanted an establishment; and the opportunity of settling themselves offered in 1416, by the inconsiderate application of Eutemi, king of Algiers, to them for assistance against the Spaniards. The active corsair gladly accepted the invitation, and, leaving his brother Hayradin with the fleet, marched at the head of 5000 men to Algiers, where he was received as their deliverer. Such a force gave him the command of the town; and observing that the Moors neither suspected him of any bad intentions, nor were capable, with their light-armed troops, of opposing his disciplined veterans, he secretly murdered the monarch he came to assist, and caused himself to be proclaimed king in his stead. The authority thus boldly usurped, he endeavoured to establish by arts suited to the genius of the people he had to govern; by liberality without bounds to those who favored his promotion; and by cruelty no less unbounded, towards all whom he had any reason to distrust. See ALGIERS. The Arabians, alarmed at his success, implored the assistance of Hamidel Abdes, king of Tunis, to drive the Turks out of Algiers. That prince readily undertook to do what was in his power for this purpose, and, upon their agreeing to settle the kingdom on himself and his descendants, set out at the head of 10,000 Moors. Upon his entering the Algerine dominions, he was joined by all the Arabians in the country. Barbarossa engaged him, with only 1000 Turkish musqueteers and 500 Granada Moors; totally defeated his numerous army; pursued him to the very gates of his capital, which he easily made himself master of; and, having given it up to be plundered by his Turks, obliged the inhabitants to acknowledge him sovereign. This victory, (which was chiefly owing to his fire-arms), was followed by an embassy from the inhabitants of Tremecen, inviting him to come to their assistance against their prince, with whom they were dissatisfied on account of his having dethroned his nephew, and offering him even the sovereignty, in case he accepted of their proposal. The king of Tremecen, not suspecting the treachery of his subjects, met the tyrant with an army of 6000 horse and 3000 foot; but Barbarossa's artillery gave him such an advantage, that the king was at length forced to retire into the capital; which he had no sooner entered, than his head was cut off, and sent to Barbarossa, with a fresh invitation to take possession of the kingdom. On his approach he was met by the inhabitants, whom he received with great complaisance, and many fair promises; but beginning to tyrannise as usual, his new subjects soon convinced him that they were not so passive as the inhabitants of Algiers. He therefore entered into an alliance with the king of Fez; after which he secured the rest of the cities in his new kingdom, by garrisoning them with his own troops. Some of these, however, revolted soon after; upon which he sent one of his corsairs, named Escander, a man no less cruel than himself, to reduce them. The Tremecenians now began to repent of their having invited such a tyrant to their assistance; and consulted how to bring back their lawful prince Abuchen-Men: but their cabals being discovered, a great number of the conspirators were massacred in the most cruel manner. The prince escaped to Oran, and was taken under the protection of the marquis of Gomarez, who sent immediate advice of it to Charles V. then lately arrived in Spain, with a powerful fleet and army. That monarch immediately ordered the young king a succour of 10,000 men, under the command of the governor of Oran; who, under the guidance of Abuchen-Men, began his march towards Tremecen; and in their way were joined by prince Selim, with a great number of Arabs and Moors. The first thing they resolved upon was to attack the important fortress of Calau, situated between Tremecen and Algiers, and commanded by Escander at the head of about 300 Turks. They invested it closely, in hopes that Barbarossa would come out of Tremecen to its relief, which would give the Tremecenians an opportunity of keeping him out. That tyrant, however, kept close in his capital, being embarassed by his fears of a revolt, and the delays of the king of Fez, who had not sent the auxiliaries he promised. The garrison of Calau, in the mean time, made a brave defence; and, in a sally, cut off near 300 Spaniards. This encouraged them to venture a second time; but they were now repulsed with a great loss, and Escander himself wounded: soon after which, they surrendered, but were all massacred by the Arabians, except sixteen, who clung close to the stirrups of the king, and of the Spanish general. Barbarossa being now informed that Abuchen-Men, with his Arabs, accompanied by the Spaniards, were in full march to lay siege to Tremecen, came out at the head of 1500 Turks, and 5000 Moorish horse, in order to break his way through the enemy; but he had not proceeded far, before his council advised him to return and fortify himself. This advice was now too late; the inhabitants being resolved to keep him out, and open their gates to their own lawful prince as soon as he appeared. In this distress Barbarossa saw no way left but to retire to the citadel, and there defend himself till he could find an opportunity of stealing out with his men and all his treasure; but, his provisions failing, he took advantage of a subterraneous back way, and, taking his immense treasure with him, stole away as secretly as he could. His flight, however, was soon discovered; and he was so closely pursued, that to amuse, as he

hoped, the enemy, he caused a great deal of his money, plate, jewels, &c. to be scattered all the way, thinking they would not fail to stop their pursuit to gather it up. This stratagem, however, failed, through the vigilance of the Spanish commander, who being at the head of the pursuers, obliged them to march on, till he was come up close to him on the banks of the Huexda, about eight leagues from Tremecen. Barbarossa had just crossed the river with his vanguard, when the Spaniards came up with his rear on the other side, and cut them all off; and then crossing the water, overtook him at a small distance from it. Here a bloody engagement ensued, in which the Turks fought like lions; but being at length overpowered by numbers, they were all cut to pieces, and Barbarossa among the rest, in the forty-fourth year of his age, and four years after he had raised himself to the royal title of Jigel of the adjacent country; two years after he had accomplished the reduction of Tremecen. His head was carried to Tremecen, on the point of a spear; and Abuchen-Men proclaimed king, to the joy of all the inhabitants. A few days after, the king of Fez appeared at the head of 20,000 horse, near the field of battle; but hearing of Barbarossa's defeat and death, marched off with all possible speed.

Barbarossa (Hayradin), upon his brother's death, assumed the sceptre at Algiers with equal abilities, but with better fortune; for the Spaniards, sufficiently employed in Europe, giving him no disturbance, he regulated the interior police of his kingdom with great prudence, carried on his naval operations with vigor, and extended his conquests on the continent of Africa. But perceiving that the Moors and Arabs submitted to his government with the utmost impatience, and being afraid that his continual depredations would one day draw upon him the arms of the Christians, he put his dominions under the protection of the Grand Seignior, and received from him a body of Turkish soldiers, sufficient for his security against his domestic, as well as his foreign enemies. At last the fame of his exploits daily increasing, Solyman, the Turkish emperor, offered him the command of his fleet, as the only person whose valor and skill entitled him to command against the famous Andrew Doria. Proud of this distinction, Barbarossa repaired to Constantinople; and with a wonderful versatility of mind, mingling the arts of a courtier with the boldness of a corsair, gained the entire confidence both of the sultan and his vizier. To them he communicated a scheme he had formed of making himself master of Tunis, the most flourishing kingdom at that time on the coast of Africa; which being approved of, they gave him whatever he demanded for carrying it into execution. He obtained it in a manner similar to that by which his brother gained Algiers; but was driven from it by Charles V. in 1536. After this he ravaged several parts of Italy, and reduced Yemen, in Arabia Felix, to the Turkish government. He died in 1547, aged 80. See Algiers.

Barbarossa was also a title or surname of Frederick I. emperor of Germany, one of the first sovereigns in Europe who ventured to speak freely of the papal hierarchy, and the pride of the popes. Of the cardinals he said, Cardinalis non esse prædicatores sed prædatores;—the cardinals were not preachers, but plunderers. This was so early as A.D. 1155. See Germany.

Barbarossa, in entomology, a species of scarabæus, a native of New Holland. The anterior part of the thorax is scabrous; horns of the head recurved and short.

BARBAROUX (Charles), a French republican, and a sufferer by the guillotine. He was a native of Marseilles, and became a member of the national assembly. He was a great adversary to Robespierre and Tallien, against whom he brought many charges. He likewise proposed the trial of the king and the royal family. On the overthrow of the Girondist party, he was arrested, but found means to escape. Some time after, however, he was seized, and brought to the guillotine at Bourdeaux, on the 25th of June, 1794.

BARBARUS (Daniel), a noble Venetian, patriarch of Aquileia, and famous for his learning, was ambassador from Venice to England; and one of the fathers of the council of Trent, where he acted with great zeal for the interest of the pope. He wrote, 1. A Commentary upon Vitruvius. 2. Catena Græcorum Patrum in quinquaginta Psalmos Latine versa. 3. La Pratica della Perspectiva. He died in 1569, aged 41.

Barbarus (Francis), a noble Venetian, of the same family with Daniel. He was born in 1398, and gained great fame in the fifteenth century, not only for his learning, but for a skilful address in the management of public affairs. He wrote a book De Re Uxoria, on the Choice of a Wife and the Duties of Women; and translated some of Plutarch's Lives. He died in 1454. His book, De Re Uxoria was printed at Paris in 1515, and his Letters in 1743.

Barbarus, (Hermolaus), grandson of Francis, one of the most learned men of the fifteenth century. The public employments he was entrusted with early, did not prevent him from cultivating letters. He understood the most difficult authors; wrote a celebrated paraphrase upon Aristotle; and corrected and translated Dioscorides, and added a commentary. But of all his works none gained him so much reputation as his commentary upon Pliny; wherein he corrected above 5000 passages, and occasionally restored 300 in Pomponius Mela. Pope Innocent VIII. to whom he was ambassador, conferred upon him the patriarchate of Aquileia. He imprudently accepted it without waiting for the consent of his superiors; though the republic of Venice had made laws forbidding the ministers they sent to the court of Rome to accept any benefice. The haughty aristocrats were inflexible; and not being able to gain any thing upon them either by flattery or his father's interest, the father died of grief, and the son soon followed him.

Barbarus (Hermolaus), was a nephew of Francis, and distinguished himself by his knowledge of the Greek language. At the age of twelve years he translated some of Æsop's Fables into Latin. He was successively bishop of Trevisa and of Verona, and died at the latter in 1470.

BARBARUS, in entomology, 1. A species of papilio; the wings without tails, and blueish. 2. A species of tenebrio, of a black color, and very glossy. 3. A species of cryptocephalus that inhabits Barbary.

BARBARUS, in ichthyology, a species of syngnathus, found in European seas.

BARBARUS, in ornithology, a species of brown vulture that inhabits Barbary, and some other parts of Africa. The vultur barbatus, Briss. Orn. and bearded vulture of Edwards and Latham. Also a species of Falco, called by the English writers Barbary falcon.

BARBARY, a part of Africa, including the states of Fez, Algiers, Morocco, Tripoli, and Tunis. This country contains almost the whole of what the Romans possessed of the continent of Africa, excepting Egypt. It stretches in length, from east to west, from Egypt to the straits of Gibraltar, full 35° of longitude; and from thence to Santa Cruz, the utmost western edge of it, about six more, in all 41°. On the south, indeed, it is confined within much narrower bounds, extending no further than from 27° to 35½° N. lat. In this view of it Barbary begins on the west of the famed mount Atlas, called by the Arabs Al Duacal, enclosing the ancient kingdoms of Suez and Dela, now provinces of Morocco; thence stretching along the Atlantic to the pillars of Hercules at cape Finisterre, then along the coast of the Mediterranean, it is at last bounded by the city of Alexandria in Egypt. In the ancient world this comparative desert was rendered interesting by being the seat of the Carthaginian empire; and portions of it were then so fruitful, that Northern Africa was sometimes denominated the granary of Italy.

Concerning the origin of the name there are many conjectures. According to some, the Romans, after they had conquered this large tract of country, gave it the name of Barbary, out of dislike to the manners of the natives, according to their custom of calling all other people but themselves and the Greeks, Barbarians. Marmol, on the contrary, derives the word Barbary from Berber, a name which the Arabs gave to its ancient inhabitants, on account of the barrenness of the country, and which they retain to this day in many parts of it, especially along the great ridge of the mountains of Atlas. According to Leo Africanus, the name of Barbary was given by the Arabs on account of the strange language of the natives, which appeared to them more like the grumbling of brutes than articulate sounds. Others derive it from the Arabic word bar, signifying a desert, which was given by one Africus, a king of Arabia, from whom the whole continent of Africa is said to have taken its name; and who being driven out of his own dominions, and closely pursued by his enemies, some of his retinue called out to him Bar-bar; that is, To the desert, to the desert; from which the country was afterwards called Barbary.

Gibbon (Decline and Fall Rom. Emp. v. ix.) says that the history of the word Bar-bar is divisible into four periods. 1. In the time of Homer, when the Greeks and Asiatics might probably use a common idiom, the imitative sound of Bar-bar, was applied to the ruder tribes, whose pronunciation was most harsh, whose grammar was most defective. Καρες Βαρβαροφωνοι (Iliad. ii. 867. with the Oxford Scholiast, Clarke's Annotations and Henry Stephens's Greek Thesaurus, tom. i. p. 720.) 2. From the time, at least, of Herodotus, it was extended to all nations who were strangers to the language and manners of the Greeks. 3. In the age of Plautus, the Romans submitted to the insult (Pompeius Festus, l. ii. p. 48. ed. Dacier), and freely gave themselves the name of Barbarians. They insensibly claimed an exemption for Italy, and her subject provinces, and at length removed the disgraceful appellation to the savage or hostile nations beyond the pale of the empire. 4. In every sense it was due to the Moors; the familiar word was borrowed from the Latin provincials by the Arabian conquerors, and has justly settled as a local denomination, (Barbary) along the northern coast of Africa.

By the Romans, this country was divided into the provinces of Mauritania, Africa Propria, &c. and they continued absolute masters of it from the time of Julius Cæsar till A. D. 428. At that time Bonifacius, the Roman governor of these provinces, having through the treachery of Ætius been forced to revolt, called to his assistance Genseric king of the Vandals, who had been some time settled in Spain. The terms offered, according to Procopius were, that Genseric should have two thirds, and Bonifacius one third, of Africa, provided they could maintain themselves against the Roman power; and to accomplish this they were to assist each other to the utmost. This proposal was instantly complied with; and Genseric set out from Spain in May 428, with an army of 80,000 men, according to some, or only 24,000 according to others, together with their wives, children, and all their effects. In the mean time the Empress Placidia, having discovered the true cause of Bonifacius's revolt, wrote a most obliging letter to him, in which she assured him of her favor and protection for the future, exhorting him to return to his duty, and exert his usual zeal for the welfare of the empire; by driving out the Barbarians, whom the malice of his enemies had obliged him to call in for his own safety and preservation. Bonifacius readily complied, and offered the Vandals considerable sums if they would return to Spain. But Genseric, already master of the greatest part of the country, returning a scornful answer, and falling unexpectedly on him, cut most of his men in pieces, and obliged Bonifacius himself to fly to Hippo, which he invested in May 430. The siege lasted till July 431, when the Vandals were forced, by a famine that began to rage in their camp, to drop the enterprise, and to retire. Soon after, Bonifacius having received two reinforcements, one from Rome, and the other, under the celebrated Aspar, from Constantinople, a resolution was taken by the Roman generals to offer the enemy battle. A bloody engagement ensued, in which the Romans were utterly defeated, a prodigious number of them taken, and the rest obliged to shelter themselves among the rocks and mountains. Aspar, who commanded the eastern troops, escaped with difficulty to Constantinople, and Bonifacius was recalled to Italy. Upon their departure, the Vandals overran all Africa, committing

everywhere the most terrible ravages, which struck the inhabitants of Hippo with such terror, that they abandoned the city, which was first plundered, and then set on fire by the victorious enemy; so that Cirtha and Carthage were now the only strong places possessed by the Romans. In 435, Genseric, afraid of an attack by the united forces of the eastern and western empires, concluded a peace with the Romans, who yielded to him part of Numidia, the province of Proconsularis, and Byzacene, for which, according to Prosper, he was to pay a yearly tribute to the emperor of the east. Genseric delivered up his son Hunneric by way of hostage; but so great was the confidence which the Romans placed in that barbarian, that some time after they sent him back his son. Of this they soon had reason to repent; for in 439, the Romans being engaged in war with the Goths in Gaul, Genseric laid hold of that opportunity to seize upon the city of Carthage; by which he considerably enlarged his African dominions. Valentinian, however, retained as long as he lived, the two Mauritanias with Tripolitana, Tingitana, and that part of Numidia where Cirtha stood. On taking Carthage, Genseric made it the seat of his empire; and in 440 ravaged the island of Sicily, and laid siege to Palermo. Not being able, however, to reduce that place, he soon returned to Africa with an immense booty, and a vast number of captives, being now become formidable to both empires, Theodosius, emperor of the east, resolved to assist Valentinian against so powerful an enemy. Accordingly, he fitted out a fleet consisting of 1100 large ships; and putting on board of it the flower of his army, under the conduct of Arcovindas, Ansilus, and Germanus, he ordered them to land in Africa, and joining the western forces there, to drive Genseric out of the countries he had seized. But the latter, pretending a desire to be reconciled with both empires, amused the Roman general with proposals of peace, till the season for action was over; and, next year, Theodosius being obliged to recal his forces to oppose the Huns, Valentinian found it necessary to conclude a peace with the Vandals; and this he could obtain on no other terms than yielding to them the quiet possession of the countries they had over-run. So powerful was Genseric now become, or rather so low was the Roman empire by this time reduced, that in 455 he took and plundered the city of Rome itself (See Rome), and, after his return to Africa, made himself master of the remaining countries held by the Romans in that part of the world. Hereupon Avitus, who had succeeded Valentinian in the empire, despatched ambassadors to Genseric, putting him in mind of the treaty he had concluded with the empire in 442; and threatening if he did not observe the articles at that time agreed upon, to make war upon him, not only with his own forces, but with those of his allies the Visigoths, who were ready to pass over into Africa. To this Genseric was so far from paying any regard that he immediately put to sea with a fleet of sixty ships; but being attacked by the Roman fleet under Ricimer, he was utterly defeated, and forced to fly back into Africa. He returned, however, soon after, with a more powerful armament, committing great ravages on the coast of Italy: but in a second expedition he was not attended with so good success; the Romans falling unexpectedly upon his men, while busied in plundering the country, put great numbers of them to the sword, and among the rest the brother-in-law of Genseric himself. Encouraged by this advantage, Majorian, then emperor, resolved to pass over into Africa, and attempt the recovery of that country. For this purpose he made great preparations; but his fleet being surprised and defeated by the Vandals, through the treachery of some of his commanders, the enterprise miscarried. Notwithstanding this misfortune, Majorian persisted in his resolution, and would in all likelihood have accomplished his purpose, had not he himself been murdered soon after by Ricimer. After his death Genseric committed what ravages he pleased in the poor remains of the western empire, and even made descents on Peloponnesus and the islands belonging to the emperor of Constantinople. In revenge, Leo made vast preparations for the invasion of Africa, insomuch that, according to Procopius, he laid out 130,000 pounds weight of gold in the equipment of his army and navy. The forces employed on this occasion were sufficient for expelling the Vandals, had they been much more powerful than they were; but the command being given to Basiliscus, a covetous and ambitious man, the fleet was utterly defeated through his treachery, and all the vast preparations came to nothing. By this last defeat the power of the Vandals in Africa was fully established, and Genseric made himself master of Sicily, as well as all the other islands between Italy and Africa, without opposition from the western emperors, whose power was entirely annihilated, A. D. 476. Thus was the Vandalic monarchy in Barbary founded by Genseric, between the years 428 and 468. That prince's government, in his new dominions, presents no very agreeable prospect. Being himself a barbarian in the worst sense of the word, and an utter stranger to every useful art, he displayed his prowess by the destruction of all the monuments of Roman greatness, which were so numerous in the country he had conquered. Instead of improving the country he laid it waste, by demolishing all the stately structures both public and private with which those proud conquerors had adorned this part of their dominions. Monuments which the Romans had been at an immense expense to erect, the barbarous Vandals reduced to heaps of ruins. Besides this kind of devastation, Genseric made his dominions a scene of blood, by persecuting the orthodox Christians; being himself, as well most of his countrymen, zealously devoted to the Arian party. He died in 477, after a reign of sixty years; and was succeeded by his son Hunneric, who also proved a still greater tyrant than his father, persecuting the orthodox with the utmost fury; and, during his short reign of seven years and a half, destroying more of them than Genseric had done in all his life. He died miserably; his flesh rotting upon his bones, and crawling with worms, so that he looked more like a dead carcase than a living man. Concerning his successors Gundamund, Thrasimund, and Hilderic, we find nothing remarkable, except that they sometimes

persecuted, and sometimes were favorable to, the orthodox. Hilderic by favoring them was ruined; for, having published, in the beginning of his reign, a manifesto, wherein he repealed all the acts of his predecessors against them, a rebellion was the immediate consequence. He was deposed in the seventh year of his reign by Gilimer, a prince of the blood-royal, who caused the king with all his family to be closely confined, and himself to be crowned at Carthage. Gilimer proved a greater tyrant than any that had gone before him. He not only continued the persecutions of the orthodox, but horribly oppressed the rest of his subjects, so that he was held in universal detestation, when the Greek emperor Justinian projected an invasion of Africa. This expedition is fabled to have been occasioned by an apparition of Lætus, an African bishop, who had been murdered some time before, and now commanded the emperor to attempt the recovery of Africa, assuring him of success. Justinian, notwithstanding his being at that time engaged in a war with Persia, now, therefore, sent a powerful fleet and army to Africa, under the command of the celebrated Belisarius. At this time Gilimer was so much taken up with his pleasure that he knew little or nothing of the formidable preparations against him. On the arrival of Belisarius, however, he put himself in a posture of defence. The management of his army he committed to his two brothers, Gundimer and Gelamund, who accordingly attacked the Romans at the head of a numerous force. The engagement was long and bloody; but at last the Vandals were defeated, and the two princes slain. Gilimer, in desperation, sallied out at the head of his corps of reserve, to renew the attack with the utmost vigor; but by his own indiscretion lost a fair opportunity of defeating the Romans. For as soon as they perceived Gilimer hastening after them at the head of a fresh army, they fled and the greatest part were dispersed in such a manner, that, had the king followed them close, they must have been totally cut off. Instead of this, however, stumbling on the body of one of his slain brothers, the sight of it made him lose all thoughts of the enemy; and instead of pursuing them, he spent his time in idle lamentations, and in burying the corpse with suitable pomp. Belisarius had thus an opportunity of rallying, which he did so effectually, that, coming unexpectedly upon Gilimer, he easily gained a new and complete victory over him. This defeat was followed by the loss of Carthage, which the barbarians had been at no pains to put into a posture of defence. Gilimer, having in vain solicited assistance from the Moors and Goths, recalled his brother Zano from Sardinia, resolving to make one desperate attempt to regain the kingdom, or at least recover the captives. The consequence was another engagement, in which Zano was killed with 800 of his choicest men, while the Romans lost only fifty; after which Belisarius, moving suddenly forward at the head of his army, fell upon the camp of the Vandals. This Gilimer was no sooner apprised of than he fled towards Numidia in the utmost consternation. As soon as the flight was known among his troops, they abandoned their camp to the Romans, who plundered it, and massacred all the men that were left, carrying the women captives. Thus a total end was put to the power of the Vandals, and the Romans once more became the masters of Barbary. The Vandal inhabitants were permitted to remain, on condition of exchanging the heresy of Arius for the orthodox faith. Gilimer fled to Medamus, a town situated on the top of the Papuan mountains, and almost inaccessible by its height and ruggedness. The siege of this place was committed to Pharas, an officer of great experience, who having shut up all avenues to the town, the fugitive was reduced to the greatest straits for want of provisions. Pharas being apprised of the distress he was in, wrote him a friendly and pathetic letter, exhorting him to put an end to the distress of himself and his friends by a surrender. This Gilimer declined; but at the same time concluded his answer with a most submissive request, that Pharas would so far pity his great distress as to send him a loaf of bread, a sponge, and a lute. This strange request surprised Pharas, but was explained by the messenger, who told him that the king had not tasted any baked bread since his arrival on that mountain, and earnestly longed to eat a morsel of it before he died; the sponge he wanted to allay a humor that had arisen in one of his eyes; and the lute, on which he had learned to play, was to assist him in setting some elegiac verses, he had composed on the subject of his misfortunes, to a suitable tune. At this mournful report, Pharas could not refrain from tears, and immediately despatched the messenger with the things he wanted. Gilimer had spent nearly three winter months on the summit of this inhospitable mountain, his misery hardening him against the thoughts of surrendering, when a melancholy scene in his own family at once reconciled him to it. This was a bloody struggle between two boys, one of them his sister's son, about a flat bit of dough, laid on the coals; which the one seized upon, burning hot as it was, and clapped into his mouth, but the other by dint of blows forced it out, and eat it from him. The quarrel, which might have ended fatally, had not Gilimer interposed, made so deep an impression upon him, that he immediately despatched a messenger to Pharas, acquainting him that he was willing to surrender himself and all his effects upon the conditions he had offered, as soon as he was assured that they were embraced by Belisarius. Pharas lost no time in getting them ratified and sent back to him. Gilimer was afterwards brought in golden chains before Justinian, whom he besought in the most submissive manner to save his life. That emperor treated him with a degree of humanity he little merited; allowing him a handsome yearly pension to live upon as a private gentleman. But his mind was too much unsettled to enjoy the sweets of a private life; so that, oppressed with grief, he died in the first year of his captivity, five years after he had been raised to the throne, A. D. 554. Barbary being thus again reduced under the power of the Romans, its history falls to be noticed under that of Rome. In the khalifat of Omar this country was reduced by the Saracens, as the reader will find under the article KHALIFS. It continued subject to the khalifs of Arabia and Bagdad till the reign of

Haroun Al Raschid, who having appointed Ibrahim Ebn Aglab, governor of the western parts of his empire, that prefect took the opportunity, first of assuming greater powers than had been granted by the khalif, and then erecting an independent principality. The race of Aglab continued to enjoy their new principality peaceably till the year of the Hegira 297 or 298, during which time they made several descents on the island of Sicily, and conquered part of it. About this time, however, one Obeidallah rebelled against the house of Aglab, and assumed the title of khalif of Kairwan, the ancient Cyrene, and residence of the Aglabite princes. To give the greater weight to his pretensions he also took the surname of Al Mohdi, or Al Mohedi, the director. He pretended to be descended in a right line from Ali Ebn Abu Taleb, and Fatema the daughter of Mahomet; for which reason the Arabs called him and his descendents Fatemites. He likewise encouraged himself and his followers by a traditional prophecy of Mahomet, that at the end of 300 years the sun should rise out of the west. Having at length driven the Aglabites into Egypt, where they became known by the name of Magrebians, he extended his dominions in Africa and Sicily, making Kairwan the place of his residence. In the 300th year of the Hegira, Habbasah, one of Al Mohdi's generals, overthrew the khalif Al Mokhtader's forces in the neighbourhood of Barca, and made himself master of that city. After which he reduced Alexandria; and was making great progress in the conquest of the whole country, while Al Mokhtader sent against him his generals Takin and Al Kasem, with an army of 100,000 men. Habbasah, being informed that the khalif's troops were in motion, advanced at the head of his army to give them battle, and at last came up with them in an island called by the Arabs Ard Al Khamsin. Here he attacked them with incredible bravery, notwithstanding their force was much superior to his; but the approach of night obliged both generals to sound a retreat. The action therefore was by no means decisive, though extremely bloody, the khalif's generals having lost 20,000 men and Habbasah 10,000. The latter, however, durst not renew the fight next morning; but stole off in the night, and returned home, so that Al Mokhtader in effect gained a victory. In the 302d year of the Hegira, however, Habbasah returned, possessed himself of Alexandria a second time, defeated a body of the khalif's forces, and killed 7000 upon the spot. In the 307th year, Abul Kasem, son to Al Mohdi, entered Egypt with an army of 100,000 men. At first he met with extraordinary success, and overran a considerable part of that fine country. He made himself master of Alexandria, Al Tayum, Al Baknasa, and the isle of Ashmaryin, penetrating even to Al Jizah, where the khalif's army under the command of Munes was posted to oppose him. In this country he maintained himself till the 308th year of the Hegira, when he was entirely defeated by Munes, who made himself master of all his baggage, as well as of the plunder he had acquired. This obliged Abul Kasem to fly to Kairwan with the shattered remains of his army, where he remained without making any further attempt on Egypt. Al Mohdi reigned twenty-four years, and was succeeded by Abul Kasem, who then took the name of Al Kayem Mohdi. During his reign we read of nothing very remarkable, except the revolt of Yezid Ebn Condat, a man of mean extraction, but who, having been raised to the dignity of chancellor, found means to create such a strong party, that the khalif was obliged to shut himself up in the castle of Mohedia. Yezid, being then at the head of a powerful army, soon reduced the capital of Kairwan, the cities of Al Rakkada and Tunis, and several other fortresses. He was no less successful in defeating a considerable number of troops which Al Kayem had sent against him; after which he closely besieged the khalif himself in the castle seven months, when the khalif died, in the twelfth year of his reign, and 334th of the Hegira. Al Kayem was succeeded by his son Ishmael, who immediately took the title of Al Mansur, but concealed the death of his father till he had made preparations for reducing the rebels. In this he was so successful, that he obliged Yezid to raise the seige of Mohetdi, and in the following year obliged him to shut himself up in the fortress of Kothama, where he besieged him in his turn. Yezid defended the place a long time with desperate bravery, but, finding the garrison at last obliged to capitulate, he made shift to escape privately. Al Mansur despatched a body of forces in pursuit of him, who overtook, and brought him back in fetters, after a vigorous defence, in which Yezid got several dangerous wounds, of which he died in prison. After his death Al Mansur caused his body to be flayed, and his skin stuffed and exposed to public view. For Al Mansur's exploits in SICILY, see that article. Nothing farther remarkable happened in his African dominions. He died after reigning seven years and sixteen days, in the 341st of the Hegira, and was succeeded by his son Abu Zammin Moab, who assumed the surname of Al Moez Ledinilloh; and maintained a bloody contest with Abdalsahman, khalif of Andalusia: for a particular account of which, see SPAIN. In the 347th year of the Hegira, beginning March 25th A. D. 958, Al Moez sent a powerful army to the western extremity of Africa, under the command of Abul Hasan Jawhar, one of his slaves, whom he had advanced to the dignity of vizier. Jawhar first advanced to a city called Tahart, which he besieged for some time ineffectually. From thence he marched to Fez, which he took at last by storm in the following year. But the greatest achievement performed by this khalif was his conquest of Egypt, and the removal of the khalifat to that country. This conquest, though long projected, he did not attempt till the year of the Hegira 358. Having then made all necessary preparations for it, he committed the care of that expedition to an experienced general called Giafar, but in the mean time, this enterprize did not divert Al Moez from the care of his other conquests, particularly those of Sicily and Sardinia; to the last of which he sailed in the year of the Hegira 361, continuing a whole year in it, and leaving the care of his African dominions to an experienced officer named Yusef Ben Zeiri. He sailed thence the following year for Tripoli in Barbary, where he

had not staid long, before he received the agreeable news that his general had made himself master of Alexandria. He lost no time, but immediately embarked for it, leaving the government of his old African dominions in the hands of his trusty servant Yusef, and arriving safely at that port was received with all the demonstrations of joy. Here he began to lay the foundations of his new Egyptian dynasty, which put a final end to the old one of Kairwan, after it had continued about sixty-five years. Al Moez, however, preserved all his old dominions of Barbary and Africa Proper. But the avarice of the governors, whom he appointed, occasioned them to run quickly to decay; particularly the new and opulent metropolis of Mohedia, on which immense sums had been lavished, so as to render it not only one of the richest and stateliest, but one of the strongest cities in the world. But the wealth and splendor of this once famed, short-lived state, took their leave of it with the departure of the khalif Al Moez. The whole maritime tract from the Egyptian confines to the Straits of Gibraltar has since become the nest of the most odious piratical crew that ever existed. Under the article ALGIERS we have given a short account of the erection of a new kingdom in Barbary by Texefien; which, however, is there no farther continued than is necessary for connecting the history of that country. A general history might here be given of the whole country of Barbary; but as that would occasion repetitions under the articles MOROCCO, TRIPOLI, TUNIS, &c. we must refer to these articles for the rest of its history, as well as for other particulars not here mentioned.

The great natural feature of this region, and that which appears to exempt it from the sterility by which it is surrounded, is the mountain chain of Atlas. This celebrated range, which ancient fable imaged as the prop of heaven, has its loftiest pinnacles in the west, immediately behind Morocco; but it extends in various branches, which have been little explored, and at different heights, along the whole southern frontier of Algiers and Tunis, leaving a fertile tract of from 50 to 200 miles on the shores of the Mediterranean. Limestone is the predominant rock of this range, which in the western and loftier ranges appears in the form of marble, and afterwards in the looser forms of secondary limestone. The marbles of Numidia are well known in history. The metallic products are not well ascertained, from the unskilful manner in which they have been worked. Silver, copper, and lead, are found to a considerable extent in Algiers and Tunis. Iron, lead, copper, silver, antimony, and a mixture of antimony, lead and gold, are found in the mountainous districts; but none of them are worked to any great extent. Salt, in many places, especially in the southern countries bordering upon the Great Desert, completely impregnates the earth; and the water of the springs and pools, when evaporated, leaves a thick crust of saline matter: in others it appears in large solid masses. Springs, some of them hot, containing other mineral substances, particularly sulphur, are frequent; indicating the presence of great internal heat. At Hamman Mescouteen, near Constantia, the waters of a spring absolutely calcine the rock over which they pass.

Much of the general character and productions of this entire region appears in our article ALGIERS, above referred to: the whole is ill-cultivated. Of the improvements in agriculture they have no notion; and their industry is constantly checked by the pressure of a short-sighted and iniquitous government. Burned stubble and the litter of the cattle turned out upon the fallows, is the only manure they use. Their ploughing is done by a wooden plough, drawn by a single yoke of oxen, going over not more than one acre in a whole day. Two bushels and a half per acre is their ordinary allowance of seed-corn, and 1200 per cent. the return expected. Dr. Shaw found the Asiatic customs introduced by the Arabs everywhere prevailing; the ox is driven round the circular threshing-floor, to tread out the corn, which is afterwards winnowed by being thrown up against the wind, just as it was in Judea three thousand years ago. (Deut. xxv. 4. Is. xxx. 24.) The grain is deposited in large subterraneous magazines called matmórs, each containing at least 500 bushels. Wheat, maize, and different species of millet (sorghum), pulse, vetches, lentils, and caravances (garbanzos), chich-peas, (cicer arietinum), are their agricultural objects. Neither oats nor hay are used; but, as in western Asia, barley and chopped straw are substituted for them. Hemp, flax, cotton, and tobacco, make up the remainder of their field produce. Their gardens abound with figs, melons, oranges, lemons, and limes; vineyards and olive-yards are seen on the plains and declivities, and our common forest-trees, corks and evergreen oaks, in the woods. There are also some inferior kinds of fruit, such as the jujube, lote-tree (zizyphus lotus), elæagnus, argan (elæodendrum arg.), diospyros lotus, celtis australis, and cornelian cherry (cornus mascula), not common among us: some gum resins, such as galbanum, opopanax, ammoniacum, and sandarac, the produce of the Arâr, or Juniperus communis, and medicinal herbs, such as wormwood, orrisroot (iris Germanica, Florentina), colocinth, or coloquintida, &c.

The climate is upon the whole temperate and salubrious, with considerable variations in the different regions. The formidable scorpion, the boa constrictor, and above all the dreaded locust, appear here; the latter in those prodigious swarms that convert a 'garden of Eden into the wilderness.' Here also range the lordly lion, (who is nowhere seen more strong or ferocious), the panther, and the hyena. The last is said, however, not to manifest in its wild state that fierceness which it displays in our menageries, and which is generated by confinement. It seldom attacks man, unless molested by him; and boys are sometimes seen leading it about with ropes. It remains all day in its cave, staring with its eyes fixed, and comes out in the night, chiefly after dead bodies. The same is observable of the jackal, here called the deeb, about half the size of the hyena. The animal most valued is the antelope or gazel, whose beauty is the object of universal admiration here; the term gazel being employed as the highest praise to a beautiful woman. The mutton is very fat here, but it is eaten as a great delicacy. The sheep of eastern Barbary, according to Shaw,

have fleeces coarse and hairy, like those of the goat; but Morocco contains some breeds with very fine wool. That territory produces likewise the breed of goats whose skins yield the leather so much esteemed in Europe. The finest species is produced in Tafilet, on the southern side of the Atlas. They are tanned with the leaves of a shrub called tizre, which are thought by some to give them their peculiar softness and pliability. The tanners, however, conceal as much as possible the processes employed.

The government of each of the four states, Morocco, Algiers, Tunis, and Tripoli, is essentially despotic. For any varieties in their particular forms, we must refer the reader to the separate articles. The general population of Barbary consists of, 1. Moors, who are the ruling race; 2. Jews; 3. Arabs; and 4. Brebers, or ancient natives. The Moors are the chief inhabitants of the towns and cities. The term may be considered as including that portion of the Mahommedan conquerors of northern Africa who have habituated themselves to a settled mode of life, along with all the inhabitants who have been incorporated with them, and trained to the same religious habits, which here regulate all the social relations, and extend their influence to the minutest practices of life. The daily ceremonies of worship are very numerous. Prayer is repeated five times a day, once before, once after sun-set, and three times in the course of the day; the crier each time from the top of a minaret loudly announcing the hour. Necessity allows the Moor to worship in any spot where he may be placed, at these hours; but such devotions are not considered equally beneficial with the public ones. At the door of the mosque is a bath for ablution; and no worshipper must enter unless barefooted. Mr. Addison relates the contempt with which a Moor once spoke to him, of the indecencies of our admitting into Christian places of worship 'women, clogs, and dirty shoes,' all of which are here excluded.

The Jews, who are numerous, are the objects of constant insult and oppression. They are envied for their wealth, despised for their avarice, and abhorred as enemies to the faith; and, as in most of the states there exists no law for their protection, the hardships of their situation are nowhere greater. As they form, however, the only class capable of managing trade or money concerns, they make immense profits, the opportunity of reaping which no oppression can induce them to relinquish. The Arabs occupy, with their flocks and herds, all the interior and pastoral districts. They live in movable villages or douars composed of tents, which are generally arranged in concentric circles, around the habitation of the sheik. They are made of camels' hair and the fibres of the palm tree. In removing, they place on the backs of camels the women, children, and young animals, the latter enclosed in baskets. The interior government of these villages is entirely conducted by their own chief or sheik, who, when the supreme government is weak, often sets it at defiance. The Brebers inhabiting the mountain districts have a language of their own, which seems to be indigenous. They live in small fixed villages, and cultivate the ground. They also elect their own sheik, and have some forms of popular government; are very strong, athletic, and formidable. Their chief amusement consists in the use of the musket.

With respect to the habits and manners of Barbary, nowhere is grovelling ignorance subject to a worse tyranny on the part of knavish priests, called here marabits, or as the word is commonly written in Europe, marabouts. These men, affecting a scrupulous observance of the Koran, and continually repeating favorite texts, gain the reputation of extraordinary sanctity, and soon persuade the people to believe them the favorites of heaven. Some pretend to miraculous powers; others practise the arts of divination, and all deal in charms, from the sale of which they make great profits. The greater part wander about through the country, professing to live on charity, (they call themselve dervises or fakirs, i. e. poor men,) and doing far more mischief than the mendicants in Popish countries. Amongst all classes in Barbary their influence is uncontrolled. At the great festivals they give an entire loose to religious phrenzy, heightened probably by large doses of opium, and the excesses in which they then indulge are truly horrible. Mr. Lyon (Travels. ii.) saw a man thrust his hand into the side of a living ass, tear out his bowels, and devour them! Idiots and madmen are, on the same stupid principle, considered as half-inspired, and are therefore looked upon with veneration, and allowed to do all the mischief which their bewildered imagination suggests. The most simple arts are little known here. Though the hardest stone and better materials abound, timber, we are told by travellers, is almost the only thing used for building. They have, however, in some parts, a sort of artificial stone, called tabiah, a mixture of lime, sand, and pebbles, put into a wooden frame of the proper size and shape, and beaten down with square rammers; and a hard and durable cement, a compound of sand, wood ashes, and lime beaten together for three days and nights without intermission, and frequently sprinkled with oil and water. Another cement used by them is made of tow, lime, and oil. The houses are built round (sometimes paved) square courts, into which the windows open; the lower part is used as stables or out-houses, the upper part for the apartments of the family. In each story is an open corridor, with which stair-cases from below and all the chambers communicate. Sometimes a fountain appears in the centre of the court, and an awning is stretched across from side to side. The ordinary houses seldom have more than one story, about sixteen feet high, with an apartment on each side of the court; and the windows being small, the want of light and air are insufferable to Europeans. No fire-places appear: a charcoal fire, in an earthern chafing dish, placed in one corner of the court, serves to cook the dinner; and mattresses on the floors, with large cushions against the walls, are the seats by day and beds by night: at one end of the room, a raised platform sometimes receives the beds. Their household utensils consist of a few pewter plates, spoons and basins, wooden bowls, earthen pots, and iron ladles, some China plates for show, and

perhaps a tea equipage. The roofs of their houses are flat, and in the cool of the day are much used by the females. The rich have often a small additional building, called ólivyah, for the accommodation of strangers. It is like another house on a small scale, and is placed over the gateway at the entrance, exactly answering to the upper chamber of the Jews. Boarded ceilings, diversified by painted lattice work, walls covered half-way down with gilt and painted wainscoting, hangings of different colored cloths, or tyger-skins, filling the interval between the wainscot and the floor, looking-glasses, clocks, or arms arranged in fanciful patterns, are the decorations of their rooms; and the courts of better houses, paved with marble and elegantly covered above, form an agreeable saloon for their company.

Eastern Barbary is distinguished by several noble monuments of antiquity. The traces of Punic architecture indeed have in a great measure disappeared; and the labors of that celebrated people are only attested by subterraneous ruins, particularly those of the celebrated aqueduct, by which water was conveyed to it from the distance of upwards of sixty miles. The whole course of it may still be traced; and several arches are entire, seventy feet high, and supported by columns sixteen feet wide. The architectural ruins being of Roman erection, are chiefly of the composite order, the favorite one of that people. The temple at Spaitla appeared to Bruce to present a specimen superior to what is to be found on any other spot. In consequence of recent excavations, some very valuable remains of statuary have been dug up; and it is probable that, by the continuance of similar researches, further valuable discoveries might be made.

The dress of the inhabitants of Barbary is cumbersome, and unlike those of eastern climates generally. The men wear a red woollen skull-cap, called Fez, (where it is manufactured,) and a white shawl twisted round the head; linen and woollen trowsers, a cotton or silk shirt, a tunic called kaftàn, with or without sleeves, having rows of buttons down the front, kept close to the body by a sash folded round the waist; and a pair of yellow slippers. The better sort have a strip of velvet passed over the right shoulder, by which they suspend the sabre; and the dagger is stuck into the folds of the sash.

The arrangements in Barbary regarding the female part of society are the same as in all Mahommedan countries. The harem is supplied chiefly from Constantinople, by Georgian or Circassian slaves, trained for this purpose by persons who carry on this employment as a trade. The interior arrangements appear to differ considerably in the different states, and, so far as known, will be described respectively under each. The women are fattened to make them plump, the grand criterion of beauty; and their under dress resembles that of the men. Two broad straps pass over the shoulders from their girdle, and are crossed upon the breast. Their hair, as in the east, is tressed and braided, and a handkerchief is tied close round the head. They wear earrings from the upper and lower parts of the ears, and upon their ancles gold and silver rings. Their slippers are always red, and usually embroidered. Veils and hayics, and sometimes straw hats, form a part of their dress out doors. A black stripe down the forehead, along the nose, chin, and throat, is considered as a great improvement of their beauty. This is very conspicuous in a plate of the Tripolitine costume, given by Captain Lyon, p. 7. They use a profusion of hinna, for giving a red tint to their hair and fingers, and stibium (al-cohl), to blacken the inside of their eye-lids. Some days before a marriage the bride is visited by her female friends, and the bridegroom parades the streets on horseback, attended by his associates, a band of music, musketry, shouting, racing, &c. announce his expected joys. On the wedding day the bride is carried through the town in a sort of sedan-chair, fixed on the back of a mule or camel, (see plate at p. 299, Captain Lyon's Travels,) covered with silk or linen. In this attire, surrounded by torches, drums, and musketry, large bodies of her relations attend her home. Nor are the attendants of the bridegroom less dazzling and noisy. Arrived, the company retire, and he is left alone with his wife, whose veil he then removes for the first time.

The amusements in Barbary are the indolent Asiatic ones of smoking, tea, and pompous talk, or the most violent exercises, such as playing with the jerid, (see JERID,) leap-frog, foot-ball, and a few more such games, probably borrowed from Spain; but one is quite peculiar to themselves: it consists of a sort of mock-fight; parties of horsemen riding full speed at each other, discharge their pieces, then wheel round and retreat. This is much like the game with the jerid; but to improve it they ride full gallop towards a wall, approach it as near as possible, then stop short and fire. Sometimes, instead of chasing a wall for this purpose, they chase a friend, when they think they cannot do him a greater honor, that by galloping up and discharging their muskets full in his face. Their lively musical airs are said to be simple and beautiful; but their serious ones dull and tedious. In riding they have a thong attached to the rein, which serves as a whip. Their spur is a long spike loosely attached to the foot, and carefully kept from the horse's side, except in case of need.

The principal and best manufacture here is morocco leather. Good carpeting is also made: mats of the palmetto; and cotton, silk and woollen cloths. Their swords and gun-barrels are also of home make. An inland traffic is maintained by periodical fairs; but the caravans, protected by their numbers, are the only safe medium of general commerce.

BARBASTELLUS, VESPERTILIO, in zoology, the tailed bat, with elevated hairy cheeks, and large ears, angulated on the lower part, the barbastelle of Buffon and Pennant.

BARBATA, in entomology, a species of brown cantharis that inhabits Germany. 2. A species of cicada (deflexa), of a brown color, with greenish abdomen. 3. A species of phalæna that inhabits Barbary. 4. A species of pimelia (Helops Fabr.) inhabiting Saxony. Fabricius.

Barbata, in natural history, a species of corallina, about three inches in length, that grows on the shores of Jamaica. Ellis, in his work on coralline, calls it the rosary or bead-coralline of Jamaica; it is the bead-band string of Plunket, and corallina major, nervo cassiori fuciformi intermedia breviora nectente of Sloane. (Hist. Jam.) Also, a species of Nais.

Barbata, in ornithology, is a species of fringilla of Chili; and a species of muscicapa, inhabiting Cayenne: called by Linnæus, the whiskered fly-catcher.

BARBATED Leaf, in botany, a leaf terminated by a bunch of strong hairs.

BARBATELLI (Bernardino), otherwise called Pochetti, an eminent painter of history, fruit, animals, and flowers, was born at Florence in 1542. He was the disciple of Ridolfo Ghirlandaio at Florence, from whose school he went to Rome, and studied there with such uncommon assiduity, that he was frequently so absolutely engrossed by the objects of his contemplations, as to forget the necessary refreshments of sleep and food. His touch was free, light, and delicate, and the coloring of his objects inexpressibly true. The historical pieces which he designed were much admired. He died in 1612.

BARBATINA, a seed which is thought efficacious in extirpating worms from the human body, to which children are chiefly liable. It comes from Persia, and the borders of Russia. It ought to be chosen plump, of an agreeable scent, and very green: special care must be taken that the color be not dyed, and that the seed of southernwood be not sold instead of it.

BARBATULA, in ichthyology, a species of cobitis, with six cirri; head unarmed and compressed; the bearded loche of English writers; enchelyopus, &c. Klein; cobitis fluviatilis, Ray; fundulus, Marsden. It is a native of Europe and Asia; and is most frequent in fresh-water streams, and lakes in mountainous countries. From its habit of lurking at the bottom of the water, on the gravel, it has been called the groundling; but the latter name is now more generally given to the spiny loche, a fish distinguished from the present by having a forked spine under each eye, and is that species of cobitis, which Gmelin calls tænia. This is a fertile creature. We are told by Mr. Pennant, that it is frequent in a stream near Amesbury in Wiltshire, where the sportsmen, through frolic, swallow it down alive in a glass of wine. It is also found in great abundance in France.

BARBATUS, in entomology, a species of cerambyx (prionus), of a large size that inhabits South America. Also a species of scarabæus, unarmed, smooth, and black; vent bearded. (Fabricius.) A native of India.

Barbatus, in ichthyology, a species of gobius. 2. A species of lophius, of a depressed form, with the lower jaw bearded. (Montin. act. suec, 1779.) Inhabiting the seas in the northern parts of Europe.

Barbatus, in ornithology, a species of falco, of a whitish red color, with brown back: the vultus barbatus, Linn., and vulturine eagle of Albinus.

Barbatus Piscis, in ichthyology, a name given by Salvian and others, to the Silurus, or sheat-fish; the Glanus of Pliny, and the ancients. This Artedi describes under the name of silurus with four cirri at the mouth. By this it is distinguished from the fish called the alkussa, or lake, which, though a genuine species of the silurus, has one beard.

BARBAULD (Anna Letitia), was the daughter of the Rev. John Aikin, of Kibworth, in Leicestershire, and born June 20, 1743. She received from her father, who in the early part of her life presided over a dissenting academy at Warrington, an excellent classisal education, to which she was indebted for the full development of her great natural talents. Her first production was a small volume of miscellaneous poetry, printed in 1772, which in the year following was succeeded by a collection of pieces in prose, published in conjunction with her brother, Dr. John Aikin, of Stoke Newington. She accepted, in 1774, the hand of the Rev. R. Barbauld, with whom she took up her residence at Palgrave in Suffolk, and there composed the work on which her reputation is chiefly founded, viz. Early Lessons and Hymns for Children, pieces of standard merit, in conveying the first rudiments of instruction. In 1785 she accompanied her husband on a tour to the continent, and on their return they resided for several years at Hampstead; in 1802 they again removed to Stoke Newington, in order the more constantly to enjoy her brother's society. In 1812 appeared the last of her publications, entitled Eighteen Hundred and Eleven, a poem; previous to which she had amused herself by selecting and editing a collection of English novels, with critical and biographical notices. A similar selection followed, from the best British Essayists, since the reign of Anne, and another from Richardson's manuscript correspondence, with a memoir and critical essay on his life and writings. Mrs. Barbauld died at Stoke Newington, March 9, 1825, in her eighty-second year.

BARBAZAN, (Stephen) a French author, born at Saint Fargeau, in the diocese of Auxerre, in 1696, and died in 1770. He wrote Instructions from a Father to a Son, 8vo. 1760; but he is chiefly famed as the editor of old French books, particularly Tales and Fables of the twelfth and thirteenth Centuries, 3 vols. 12mo. Few persons were so well acquainted as he was with the antique French language, and he had almost an equal knowledge of the provincial dialects.

BARBE, or Barbette, in the military art. To fire in barbe means to fire the cannon over the parapet, instead of firing through the embrasures; in which case the parapet must not be above three feet and a half high.

Barbe, or Barb. See Barb.

Barbe, or Barde, is an old word, denoting the armour of the horses of the ancient knights and soldiers, who were accoutred at all points. It is said to have been an armour of iron and leather, wherewith the neck, breast, and shoulders of the horse were covered.

Barbe, St. a town of Biscay in Mexico, near which are rich silver mines, 500 miles north-west of the city of Mexico. Long. 110° 5′ W., lat. 26° 10′ N.

The Barbe, or Barb, of zoology and commerce, brought from Barbary, is a horse much esteemed for its beauty, vigor, and swiftness. It has a long fine neck, not overcharged with

hair, well divided from the withers: the head small and beautiful; the ears handsome; the shoulders light and flat; the withers thin and well raised; the back straight and short; the flank and sides round, and the belly not too large. The haunch bones are properly concealed; the crupper is somewhat long, and the tail placed high; the thigh is well formed, and rarely flat; the limbs are fine, handsome, and not hairy; the tendon prominent, and the foot well made; but the pastern is often long. They are of all colors, but generally gray. In their movements they are apt to be careless, and require to be checked. They are swift, nervous, light, and make very fine hunters. These horses are much sought after for improving a breed. They are seldom, however, above four feet eight inches, and never exceed four feet nine inches, or 14½ hands; but they produce foals which grow larger. Those of the kingdom of Morocco are said to be the best, and next to these the barbs from the mountains. The horses from Mauritania are of an inferior quality, as well as those of Turkey, Persia, and Armenia. (Buffon's Nat. Hist. vol. iii. p. 357.) It is a maxim, that barbs grow ripe, but never grow old, because they retain their vigor to the last, which makes them prized for stallions. In Numidia, the race of horses is much degenerated. The Tingitanians and Egyptians have had the reputation of preserving the best breed. Some of these are sixteen hands high, and all of them shaped, according to their phrase, like the antelope. The good qualities of a Barbary horse, besides the supposed one of never lying down, and of standing still when the rider drops his bridle, are to have a long walk, and to stop short, if required, in full career. The barb is very lazy and negligent in his general motions; he will stumble in walking upon the smoothest ground; his trot is like that of a cow, and his gallop very low, very easy to himself. This sort of horse, however, is for the most part sinewy, nervous, and excellently winded; it is therefore good for a course, if not overweighted. The mountain barbs, which are the largest and strongest, are much esteemed: common barbs have been usually bought in Provence and Languedoc in France, at a moderate price; and many of our persons of fashion in England have them from thence. Barbs, amongst us, fall short of the swiftness attributed to them in their native country; this may be accounted for, partly from the smallness and lightness of their riders, and partly from their not being loaded with heavy saddles and bridles, as in Europe, nor even with shoes. An Arab saddle is only a cloth girt round with a pair of light stirrups, and a sort of pummel to sustain them.

Bastard-Barbs, are those descending from English mares, covered by barb stallions, and who are, by experience, found both better shaped, stronger, and fitter for the saddle, than their sires. Phil. Trans. No. 105.

BARBEAU de la Bruyere (John Lewis), a celebrated French chronologer, born at Paris in 1710. He published an historic map of the world, in which geography, chronology, and history, are combined in one view; and an edition, a great part of which he compiled, of the Abbé Lenglet's Chronological Tables; also, La Croix's Modern Geography, and the two last volumes of Bibliotheque de France. Besides which, he translated into French, Strahlenberg's Description of Russia, &c. He died in 1781.

Barbeau, a river of Canada, which runs into the Utawas. Long. 76° 55′ W., lat. 45° 5′ N.

Barbed, in heraldry, the five petals or leaves which appear on the outside of a full blown rose are called barbs; and are thus emblazoned: a rose gules barbed and seeded proper, the rose is red, the barbs green, and the seeds yellow or gray. A barbed arrow, signifies an arrow whose head is pointed of an angular form, and jagged. A barbed horse is a horse barbed at all points, that is, a war-horse completely armed, furnished, and accoutred.

Barbed Cross, in heraldry, a cross, the extremities whereof are like the barbed irons used for striking fish.

BAR'BEL. A fish so called by reason of the *barb*, or wattels, at his mouth, which are under his nose or chaps, so says old Izaak Walton. It is the vulgar name of the cyprinus barbus, which cost the fisherman so dear, when he presented it to the gloomy and savage Tiberius, at Capræa.

> The lavish slave
> Six thousand pieces for a *barbel* gave;
> A sesterce for each pound it weigh'd, as they
> Gave out, that hear great things, but greater say.
> *Duke.*

Barbel, in heraldry, is understood of a cock, when his comb and wattles are of a different color from the rest of the body; in which case he is said to be barbed and crested.

Barbel, in ichthyology. See Cyprinus.

BARBELA, or Verbela, the branch of the Zaire or Congo which comes from the south, and is considered by the Portuguese geographers as the principal one. It is said to take its rise in the kingdom of Matamba.

BARBELICOTÆ, an ancient sect of Gnostics, spoken of by Theodoret. Their doctrine was that one of the Æons, possessed of immortality, had commerce with a virgin spirit named Barbeloth, who demanded of him, first prescience, then incorruptibility, and lastly eternal life; all which were granted to her: that being one day in a gayer humor than ordinary, she conceived and afterwards brought forth light, which being perfected by the unction of the spirit, was called Christ: the child Christ desired to have understanding, νους, and obtained it; after which, understanding, reason, incorruptibility, and Christ united together; and from their union arose autogenes αυτογενης. To these fables, they and divers others. They were also denominated Barbariani.

BARBELOTH. See the last article.

BARBER-Chirurgeons anciently had a lute, viol, or some other musical instrument, as part of the furniture of their shops, which were frequented by persons above the ordinary level, who resorted to the barber either for the cure of wounds, or to undergo some chirurgical operations, or, as it was then called, to be trimmed

a word that signified either shaving or cutting and curling the hair; these, together with letting blood, were the ancient occupations of the barber-surgeons. As to the other important branch of surgery, the setting of fractured limbs, that was practised by another class, called bone-setters, of whom there are hardly any now remaining. The musical instruments in their shops were for the entertainment of waiting customers; and answered the end of a newspaper, with which those who now wait for their turn at the barber's amuse themselves.

Barber, Chirurgeons, in heraldry, were incorporated by king Edward IV., but the barbers were separated from the surgeons by 18 Geo. 2, c. 15. Their arms are, 'A St. George's cross *gules*; thereon a lion passant gardant, *or* quarterly; the first and fourth a chevron between three fleams; the second and third per *pale argent* and *vert*, a rose, *gules*, crowned, and seeded *or*.

Barbers of Edinburgh were formerly united in one incorporation with the surgeons; but about the year 1720, some disputes arising about precedency, a process commenced before the Court of Session, which ended in a total separation of these two bodies; and the surgeons were found entitled to retain the charter and privileges of the incorporation. The barbers have ever since met as a regular, but unincorporated society; and though they retain some of their former privileges, such as their preses being one of the governors of the Trades Maiden Hospital, &c. they have no representative in the town council, nor even the shadow of a vote in the election of a member of parliament. Mr. Creech, in his Statistical Account of Edinburgh, records a revolution of a different nature in that society, which affords an instance of the rapid progress of refinement, or, as a philosopher would express it, the rapid increase of luxury, in the metropolis of Scotland. 'In 1763,' he says, 'there was no such profession known as a perfumer; barbers and wigmakers were numerous, and were in the order of descent burgesses: hairdressers were few, and hardly permitted to dress hair on Sundays; and many of them voluntarily declined it. In 1783 perfumers had splendid shops in every principal street: Some of them advertised the keeping of bears, to kill occasionally, for greasing ladies' and gentlemens' hair, as superior to any other animal fat. Hairdressers were more than tripled in number; and their busiest day was on Sunday. There was a professor who advertised a hair-dressing academy, and gave lectures on that noble and useful art.'

Barber's Pole. See Appellation.

BARBERINO (Francis), one of the most excellent poets of his age, was born at Barberino, in Tuscany, A. D. 1264. As his mother was of Florence, he settled in that city; where his profession of the law, but especially the beauty of his poetry, raised him a very considerable character. The greatest part of his works are lost; but his 'Precepts of Love, a moral poem, calculated to instruct all who have a regard for glory, virtue and eternity,' has had a better fate. It was published at Rome, adorned with beautiful figures, in 1640, by Frederick Ubaldini; who prefixed the author's life; and, as there are in the poem many words which are grown obsolete, he added a glossary to explain them, which illustrates the sense by the authority of contemporary poets.

BARBERINO, a town of Italy, in Tuscany, situated at the foot of the Appenine mountains, twelve miles south of Florence.

Barberry, in botany. See Berberis.

BARBERSTOWN, a town of Ireland, in the county of Kildare, Leinster, twenty-three miles from Dublin.

BARBESULA, in ancient geography, 1. a town, and 2. a river, of Bætica; 3. a colony in the resort of the Conventus Gaditanus in Spain: now Marbella, in Grenada.

BARBET, in natural history, a name given by M. Reaumur, and other of the French writers, to a peculiar species of the worms which feed on the pucerons or aphides. See Aphis.

Barbet, in zoology. Buffon calls the water-dog of Pennant, canis aquaticus of Gmelin, &c. le grand barbet; and canis minor Gmel. le petit barbet. Hist. Nat.

Barbet, in ornithology, the English name of a genus of birds in Latham's Synopsis, corresponding with that of bucco, Linn. See Bucco.

Barbets, the name of the inhabitants of several valleys in Piedmont, particularly those of Lucern, Angrona, Perusa, and St. Martin.

BARBEYRAC (Charles), an eminent physician, born at Cereste, in Provence, in 1629. He studied at Montpelier, and afterwards settled there. The celebrated Locke, with whom he was in friendship, compared him to Sydenham. He died in 1699. He was author of Traités nouveau de Medicine, &c. 12mo. 1654; and Questiones Medicæ Duodecim, 4to. 1658.

Barbeyrac (John), was born at Besiers, in Lower Languedoc, in 1674. He was made professor of law and history at Lausanne in 1710, which he enjoyed for seven years. In 1717 he was professor of public and private law at Groningen. He translated into French, Puffendorf's Law of Nature and Nations, and his Duties of a Man and a Citizen; to both which he wrote excellent notes, and to the former an introductory preface. He translated also Grotius's treatise De Jure Belli ac Pacis, with large and excellent notes; and several of Tillotson's sermons. He wrote a work entitled Traité de Jeu, 2 vols. 8vo.

BARBEZIEUX, a town of France, in the province of Saintonge, with 2452 inhabitants, and the title of marquisate. It is the capital of an arrondissement of six cantons, in the department of the Charente. Here are thriving linen manufactures; and in the neighbourhood there is a mineral spring. Twenty-eight miles south-east of Saintes, and forty-four north-east of Bourdeaux. Long. 0° 4′ W., lat. 45° 28′ N.

BARBI, in natural history, a species of echinorhynchus, of an ovate shape, yellow color, fasciated; neck long, white, cylindrical; and cyathiform (glass or pot-shaped) at the end, found in the intestine of the barbel.

BARBICAN. See Barbacan.

Barbican, in ornithology, the name of the Gmelinian bucco dubius, or doubtful barbet, in

Buffon's Hist. Birds Barbu is also a name given by that writer to all the birds of the bucco genus, which he describes.

BARBICANAGE, or BARBICANAGIUM, in our old writers, money given for the maintenance of a barbican, or watch tower; or a tribute towards repairing or building a bulwark.

BARBICON (BARBICON DE CAYENNE), in ornithology, the name of the Muscicapa barbata of Gmelin, in Buffon's History of Birds.

BARBICORNIS, in entomology, a species of brentus that inhabits New Zealand, the curculio barbicornis of Fabricius. 2. A species of cerambyx. 3. A species of cimex (reduvius), of Sierra Leone. 4. A species of tipula.

BARBIER (M.), an English singer, who appeared on the revival of the opera of Almahide, in 1711. Her timidity on this occasion gave birth to an admirable Spectator (No. 131), in which Addison apologises for and commends her diffidence and modesty. This lady was a native of England, who continued to sing at the opera several years, and afterwards was a favorite concert and playhouse singer till the year 1729. In 1717 it seems she had somewhat vanquished her bashfulness in private. Her elopement from her father's house gave occasion to the following elegant lines by Hughes:—

All, who in town or country dwell,
Say, can you tale or tidings tell
Of Tortorella's hasty flight?
Why in new groves she takes delight;
And if in concert, or alone,
The cooing murmurer makes her moan?
Now learn the marks, by which you may
Trace out and stop the lovely stray.
Some wit, more folly, and no care,
Thoughtless her conduct, free her air;
Gay, scornful, sober, indiscreet,
In whom all contradictions meet,
Civil, affronting, peevish, easy,
Form'd both to charm you and displease you;
Much want of judgment, none of pride,
Modish her dress, her hoop full wide;
Brown skin, her eyes of sable hue,
Angel when pleased, when vexed a shrew.
Genteel her motion when she walks,
Sweetly she sings, and loudly talks;
Knows all the world, and its affairs,
Who goes to court, to plays, to prayers,
Who keeps, who marries, fails or thrives,
Lead honest or dishonest lives;
What money match'd each youth or maid,
And who was at each masquerade;
Of all fine things in this fine town,
She's only to herself unknown.
By this description, if you meet her,
With lowly bows, and homage greet her!
And if you bring the vagrant beauty
Back to her mother and her duty,
Ask for reward a lover's bliss,
And, if she'll let you, take a kiss;
Or more, if more you wish, and may,
Try if at church the words she'll say,
Then make her, if you can—obey.

BARBIERI (Giovanni Francesco), otherwise called Guercino da Cento, an eminent historical painter, was born at Cento, near Bologna, in 1590. He was the disciple of Benedetto Gennari, but afterwards studied in the school of the Caracci, though he did not adopt the manner of that famous academy. He preferred the style of Caravaggio to that of Guido or Albano, imagining it impossible to imitate nature truly, without the assistance of strong lights and strong shadows. In effect, by this opposition, he gave such force to his pictures, that few, except those of Caravaggio, can stand near them, and not seem feeble in their effect; however, his manner is censured as not being like nature, because it makes objects appear as if they were seen by a candle-light, or a sun-beam, which alone can justify the deepness of his shadowing. His principal attention seems to have been fixed on perfection in coloring; he saw the astonishing effects produced by the coloring of the celebrated Venetian masters; and observed that notwithstanding any imperfection in regard to correctness or elegance, their works were the objects of universal admiration. On this account he devoted his whole study to excel in coloring; being convinced that few are qualified to discern the elevation of thought which constitutes the excellence of a composition; that few are touched with the grandeur or beauty of the design, or have a capacity to examine the correctness of a painting; but that every imperfect judge may be sensibly affected by the beauty of the coloring. His taste of design was natural, easy, and often grand, but without any extraordinary share of correctness or elegance. The airs of his heads are often deficient in dignity, and his local colors want truth. However, there is great harmony in his colors, although his carnations are not very fresh; and in all his works there is an expressive imitation of life, which will always render them estimable. Towards the decline of his life, he observed that the clearer and brighter style of Guido and Albano had attracted the admiration of all Europe; and therefore he altered his manner, even against his own judgment. But he apologised for that conduct, by declaring that in his former time he painted for fame, and to please the judicious; and he now painted to please the ignorant, and enrich himself. He died in 1666. The most capital performance of Barbieri is the history of St. Petronilla which is considered as one of the ornaments of St. Peter's, at Rome.

BARBIERI (Paolo Antonio, da Cento), painter of still life and animals, was the brother of Giovanni, and born at Cento in 1596. He chose for his subjects, fruit, flowers, insects, and animals; which he painted after nature, with a lively tint of color, great tenderness of pencil, and a strong character of truth and life. He died in 1640.

BARBIGEROUS, bearded.

BARBILLONS, in entomology, are certain bodies, usually two in number, placed under the head of an insect, and movable at pleasure, somewhat resembling hands or fingers placed on a short or broken arm. The word is a diminutive of the French barbe, the beard.

BARBING, is sometimes used in ancient statutes for shearing. Cloth is not to be exported till it be barbed, rowed, and shorn. 3 Hen. VII. c. 11.

BARBISTON, an ancient castle in the parish of Dalrymple, in Ayrshire, near which a battle was fought. The dates of 1340 and 1345, are on some stones in the old vaults.

BARBITOS, or BARBITON, an ancient instrument of music, mounted with three strings; others say seven, much used by Sappho and Alcæus; whence it is also denominated lesboum. It is said to have differed from the lyre and cithara. Strabo makes it the same with the sambuca. It is represented as yielding a grave, deep, sound, and on that account peculiarly fitted for Doric compositions. Anacreon is said to have been the inventor.

BARBLE, or BARBEL, in ichthyology. See CYPRINUS.

BARBLES, BARBES, or BARBS, in farriery, the knots or superfluous flesh that grow up in the channels of a horse's mouth; that is, in the intervals that separate the bars, and lie under the tongue. These obtain in black cattle as well as horses, and obstruct their eating. For the cure, they cast the beast, draw out his tongue, and clip off the barbles with a pair of scissars, or cut them with a sharp knife; others burn them off with a hot iron.

BARBO, a river of Mexico, which rises in the province of Honduras, and runs into the Spanish Main, forty miles south-east of Cape Camaron.

BARBONI, in ichthyology, a name given to the mullus barbatus, a fish greatly esteemed at table, and caught in the Mediterranean and some other seas.

BARBONNE, a town of France, in the department of the Marne, five miles from Sezanne.

BARBORA, a maritime town of Africa, in the kingdom of Adel.

BARBOUR (John), archdeacon of Aberdeen, was esteemed an elegant poet in the reign of David I. He wrote the history of Robert the Bruce, in an heroic poem, which is still extant, and contains many facts and anecdotes omitted by other historians. An edition of this book was printed at Glasgow, 8vo, in 1762: entitled The Acts and Life of the most victorious conqueror Robert Bruce, king of Scotland, wherein also are contained the martial deeds of the valiant princes Edward Bruce, Sir James Douglass, Earl Thomas Randall, Walter Steward, and sundry others. In one passage he calls it a romance; but that word was then of good reputation. The Romaunt of romaunts has been applied to true history; as well as the Ballad of ballads to a sacred song. Mr. Pinkerton published an edition in 1790, from an ancient MS.

BARBUD, a Persian musician in the service of Kosru Parviz, whose name was afterwards adopted to signify the master of music. Barbud is also the name of a sort of lyre in use among the Persians.

BARBUDA, or BERBUDA, one of the British Carribee islands, about twenty miles long, and twelve broad. It is low land, but fruitful and pretty populous, abounding in cattle and fruits, especially in cocoa trees, which are here extremely fine. It also yields cotton, pepper, tobacco, indigo, ginger, and sugar-cane, besides fine woods, herbs, and roots, with which it is plentifully stocked. Several species of snakes are found in this island, some of which are harmless, while others are exceedingly venemous. Amongst the latter is one having a flat head, whose bite occasions instant death. The island has no harbour, but a well sheltered road on the west side. The inhabitants are about 1500, and follow husbandry, finding always a ready market for their corn and cattle in the sugar islands. Barbuda is the property of the Codrington family, who have great numbers of negroes here, as well as in Barbadoes. That family have one merit which few slave-holders can lay claim to: they have given large benefactions to instruct their slaves in Christianity. Barbuda lies about twenty miles north-east of St. Christopher's, and forty-five north of Antigua. Long. 61° 50′ W., lat. 18° 30′ N.

BARBUE, a river of North America, in the north-western territory, which runs west by north, and falls into the Lake of Michigan. It is about 150 yards broad at the mouth.

BARBULÆ in botany, a name given by Pliny to the semi-flosculi.

BARBURY CASTLE, and BARBURY HILL, places in Wiltshire, west of Ogborn St. George, and near Marlborough Downs. There formerly stood here a castle of considerable magnitude, surrounded by a double moat; and on the adjacent plain are many barrows, which seem to indicate that a great battle was fought on this spot, at some remote period.

BARBY, a county in the Prussian states on the Elbe, between Magdeburg and Anhalt, consisting of the bailiwics of Barby, Rosenburg, Walther-Nienburg, and Muhlingen. On the death of the last of the counts in 1659, Barby Proper came to the elector of Saxony, and after forming part of Jerome Buonaparte's kingdom of Westphalia, was annexed to Prussia in 1815.

BARBY, the chief town is situated on the Elbe, near where it receives the Saale, and has 2900 inhabitants. It is well built, has an old castle, and is the seat of the superintendant of eight churches in the county. The Moravian brethren obtained permission in 1749 to remove hither their academy and theological seminary, and they founded an academical college in 1754. They had here also a school and chapel, an observatory, and a cabinet of natural history; but the greater number of these establishments have been transferred to Niesky, in Upper Lusatia. Fourteen miles north-west of Dessau, and fourteen S. S. E. of Magdeburg. Long. 11° 58′ 47″ E., lat. 51° 59′ N.

BARBYLA, in botany, a name by which Theocritus and other of the early writers, have called the common damask prune.

BARCA, a large country of Africa, lying on the coast of the Mediterranean sea, between the kingdoms of Egypt and Tripoli, extending in length from east to west from 39° to 46° E. long., and in breadth from north to south about thirty leagues, as is generally supposed. It is for the most part, especially in the middle, a dry sandy desert; on which account the Arabs call it Sahart, or Ceyart Barka, that is, the desert or road of whirlwinds or hurricanes. It labors almost everywhere under a great scarcity of water; and except in the neighbourhood of towns and villages, where the ground produces some small quantities of grain, such as millet, and some maize, the rest is in a manner quite barren and uncultivated, or rather uncultivable: and even of that small quantity which those few spots produce, the poor inhabitants are obliged to exchange some part with their

indigent neighbours, for dates, sheep, and camels, which they stand in greater need of than they, by reason of their great scarcity of grass and other proper food; for want of which, those that are brought to them, seldom thrive or live long. In this territory stood the famed temple of Jupiter Ammon: and notwithstanding the pleasantness of the spot where it stood, this part of the country is said to have been the most dangerous of any, being surrounded with such quick and burning sands as are very detrimental to travellers; not only as their feet sink into them, but being light and heated by the rays of the sun, they are easily raised by every breath of wind; which, if it chance to be in their faces, almost burns their eyes out, and stifles them for want of breath; or, if vehement, often overwhelms whole caravans. Against this temple Cambyses, king of Persia, despatched an army of 50,000 men. They set out from Thebes, in Upper Egypt, and under the conduct of proper guides, reached the city of Oasis, seven days journey from that place: but what was their fate afterwards is uncertain; for they never returned either to Egypt or to their own country. The Ammonians informed Herodotus, that, after the army had entered the sandy desert which lies beyond Oasis, a violent wind began to blow from the south at the time of their dinner, and raised the sand to such a degree, that the whole army was overwhelmed and buried alive. Concerning the government or commerce of this country we know nothing certain. The maritime towns are under the nominal protection of the Porte, and the whole country is subject to Tripoli, the bashaw of which appoints a sangiack, who resides at Derne, the capital of Barca.

Barca, a sea-port town in the territory of the same name. Long. 20° 25′ E., lat. 32° 26′ N.

BARCALAO, a Spanish word, which the French pronounce baccala, or baccaliau. By this last name the Basques most commonly call the fish which we style cod; and those people call also the island which we call Newfoundland, the isle of Baccalian, cod island, because of the great plenty of cod caught there.

BARCALON, an appellation given to the prime minister of the king of Siam, who superintends every thing relating to commerce, both foreign and domestic, as well as the king's magazines.

BARCA-LONGA, a large Spanish fishing-boat, navigated with lug-sails, and having two or three masts, very common in the Mediterranean.

BARCALORE, a town of Cochin, twenty-two miles east of Cranganore.

BARCANS, the natives of Barca, which see.

BARCARIA, old law Lat, a barkery or tan-house.

BARCARY, bergerie, Fr. a sheep-cote.

BARCAS, a town of New Mexico, in the intendancy of Guadalaxara, which has a numerous population of Spaniards, Mestizoes, and Mulattoes.

BARCATTY, a town of Cochin, on the confines of Dindigul, sixty miles east of Cochin.

BARCE, the chief city in the province of Barca, about nine miles from the sea. It was founded by the brothers of Arcesilaus, king of Cyrene, 515 years before the Christian era.

BARCELONA, a handsome, rich, and strong city of Spain, in the province of Catalonia, of which it is the capital. It is situated by the sea side, of a form between a square and an oval; surrounded with a good brick wall, round which is another, with fourteen bastions, horn-works, ramparts, and ditches; the ramparts are high, broad and spacious. This city, which is reckoned the second in Spain in population, is divided into two parts, the Old and the New, separated from each other by a wall and a large ditch; the streets are handsome, well paved with large stones, wide, and very clean. It is a bishop's see, the seat of a captain-general, a governor, and a royal audiencia; and here the archives of the kingdom of Arragon are preserved.

The Barcelonians have also a fine university, and various institutions for the promotion of literature, arts and sciences; the academies for jurisprudence, natural philosophy, medicine, history, and the fine arts, are celebrated throughout Spain. The most remarkable buildings are the cathedral, which is adorned with two high towers; the church of the Virgin Mary, the palace of the bishop, that of the inquisition, and several religious houses; add to these the palace of the viceroy, the arsenal, which contains arms for 1000 men, and a cannon-foundry, the exchange, where the merchants meet, the tersana, where they build the galleys, and the palace where the nobility of the country meet, called La Casa de la Deputation. This last is built with fine large free stone, and adorned with columns of marble: there is in it a large hall, with a handsome portico. There are several fine squares, particularly that of St. Michael, into which all the great streets run.

This city was originally founded by Hamilcar Barcas, and from him called Barcino. It was reduced by the Romans, and continued subject to them till Spain was over-run by the Goths and Vandals. In the beginning of the ninth century Barcelona was in the hands of the Saracens, under the government of one Zade. The government having more than once abused the clemency of Charlemagne, at last irritated Louis king of Aquitain, his son, to such a degree, that he gave orders to his generals to invest the city, and not to rise from before it till they had put Zade into his hands. Zade made a most obstinate resistance, so that the siege lasted many months; at last, finding it impossible to preserve the city much longer, and being destitute of all hopes of relief, he determined, or rather was compelled by the inhabitants, to go to the Christian camp and implore the emperor's mercy; and being sent prisoner to Charlemagne, he was condemned to perpetual banishment. The people gaining nothing by this expedient, continued to hold out for six weeks longer, when Louis himself took the command of the siege. To him they made a proposal, that if he would allow them to go where they pleased, they would surrender. Louis, having agreed to this, made his public entry into Barcelona, where he formed a design of extending his father's dominions as far as the Ebro; but being recalled before he could put his design in execution, he appointed one Bera, count of Barcelona. The city continued

subject to him and his successors, who enjoyed the title of counts of Barcelona, from A. D. 802 to 1131; during which time nothing remarkable occurred, except that the city was once taken by the Moors, but soon after retaken by the assistance of Louis IV. king of France. In 1131 it was united to the crown of Arragon by the marriage of Raymond V. count of Barcelona with the daughter of Ramiro the monk, king of Arragon. In 1465 the Catalonians revolted against John II. king of Arragon, out of hatred to the queen Donna Joanna; the consequence of which was, that Barcelona was besieged by that monarch in 1471. Various efforts were made by Louis XI. of France and the duke of Lorraine to raise the siege, but without effect. Things at length were brought to the utmost extremity, when the king offered to pardon them all, without the smallest punishment either in person or property, provided they would submit; but these terms they rejected, chiefly through the influence of the count de Pailhars, who had been pardoned the year before. The army on the other hand, was very earnest in being led on to the assault, in hopes of plunder. The king, however, wrote a letter to the citizens, dated the 6th of October, in terms as affectionate as if he had been writing to his children, bewailing the miseries they had brought on themselves, and concluding with a protestation that they, and not he, must be answerable for the consequences. Upon this, they sent deputies to the king, and made a capitulation on the 17th of that month. In this the king acknowledged they had taken up arms on just motives; and forgave everybody except Pailhars, who was, however, suffered to escape. On the 22nd of October the king made his entry into the city, and confirmed all their ancient privileges. In 1697 Barcelona was taken by the French, after a bloody siege of fifty-two days; and the loss of this city had a considerable effect in disposing the Spaniards to agree to the treaty of Ryswick. In queen Anne's time it was taken by the allies, under the earl of Peterborough, Oct. 4, 1705; but, being afterwards shamefully denied assistance by the English ministry, was obliged to submit to Philip V. by whom the whole province was deprived of its ancient privileges, in 1714; for a particular account of which, see SPAIN.

The port of Barcelona is wide, spacious, deep, and safe; defended on the one side by a great mole, and on the other sheltered from the west wind by two mountains that advance into the sea, and form a kind of promontory; the mole is 750 paces long, with a quay, at the end of which is a light house and a small fort. One of the mountains, called Montjoui or Mount Joy, is very high, and rises in the middle of the plain near the city: it is covered with gardens, vineyards, groves of trees, and has a strong fort for the defence of the city; this mountain being a rock, yields an inexhaustible quarry of fine hard freestone. Barcelona is a place of great trade. The number of ships which arrived here in 1803, before its commerce was impeded by the peninsular war, has been stated at 1333, 927 of which were Spanish, and the remainder belonged to other nations. The manufacturing establishments are calico presses, looms for silk, wool, and cotton, hats, laces, ribbons, stockings, and soap. Here, also, are fabricated excellent muskets, pistols, swords, and other small arms, not only for the army at home, but for Naples and America. There are, besides, several steel and brass works. It has, also, a good trade in linen, copper, and brass, from Germany. Another extensive article of its trade is salt fish, from Newfoundland, the chief trade for which is with England.

When the trade with Mexico was first opened, in 1778, the Barcelonese merchants soon distinguished themselves by successful enterprises in it. Twenty-three ships, whose cargoes of Spanish produce was valued at £85,000 English, and the foreign freight at £25,000, cleared out here the first year. In ten years after, the goods thus exported amounted to £400,000, and the return cargoes to £450,000. The present export and import trade are taken together at £1,750,000, and the population at about 112,000.

At Barcelona Charles III., of the house of Bourbon, landed from Naples in 1759, to take possession of the throne of Spain. On the 16th February, 1808, it was surprised by a body of French troops under general Duhesme. They arrived in the neighbouhood on the 13th of February to the number of 10,000; and, having requested permission to halt and refresh themselves on their way to Valencia, the gates were opened to receive them, and they were hailed as friends and allies. On the 16th, having assembled on the parade, as if for the purpose of continuing their march, they filed off in two divisions, one to the citadel, the other to Monjui, a fort upon a hill which commands the town, and having summoned those posts, they were immediately surrendered. Barcelona continued in possession of the French until the year 1814.

BARCELONA, one of the principal provinces of the government of Cumana, South America: bounded on the west by Cumana, east by the Caraccas, and south by the river Orinoco, which also divides it from Guiana. Here commence those immense plains, covered with excellent pasturage, which, uniting with those of the Caraccas, extend as far south as the Orinoco. They were formerly well stocked with cattle, 8000 or 9000 head being killed annually, in salting of which the inhabitants exhibited great skill. In the province are four remarkable salt-pits; but of late the supply is much diminished. This province declared its independence in 1811, and is now a part of the republic of Columbia.

BARCELONA NEW, the capital of the foregoing province, is situate in a plain on the left bank of the river Neveri, half a league distant from the sea, in 10° 10′ N. lat. and 64° 47′ W. long. It is twelve leagues from Cumana in a direct line; but the windings which it is necessary to make to avoid bad roads, make it a journey of twenty hours. It is reckoned ten marine leagues by sea from the port of Barcelona to that of Cumana.

On ascending on the east side of the river, about four miles from its mouth, we observe, on an eminence which bears the name of the city, a fort erected for the protection of vessels which anchor not far from it, in a bay so shallow as not

to be capable of admitting veesels of considerable size. This port, if it may be so called, affords no shelter but against the breeze: but at the distance of one league to the north, the island of Borracha, inhabited by fishermen, presents, on its south side, a safe harbour for ships of the largest size. From the hill of Barcelona, the coast runs to the north-east, as far as Cumana, which is at the distance of two leagues. That space is filled with a chain of islands, not far removed from the coast. Some of these are provided with bays and ports; but they are of no great consequence.

Barcelona has a population of fourteen thousand souls, a single parish church, and an hospital for the Franciscans who support the missions of this part. It is neither handsomely nor agreeably constructed. Its unpaved streets are extremely muddy in rainy weather; and in dry seasons they are covered with a dust so light that the least breath raises it in the air. The immense quantity of hogs fed there, induce in the city a number of stinking and infectious sties, which corrupt the air and frequently create diseases. In 1803, however, the commandant of the place took measures for removing from the town an infection which could not but poison its residence. This town had, in 1807, a population of 15,000 persons; half whites and half mulattoes and negroes.

Hides, tallow, oxen, mules, jirked and salted beef, are the great articles of trade here; in 1800 eight thousand mules left this port for the West India islands. The annual value of the trade is computed at 400,000 dollars.

BARCELONETTA, a small and new town of Spain, in Catalonia, a suburb of Barcelona. It stands on the south-east of that city, between the harbour and the light-house, and was built by the marquis de la Mina, then captain-general of Catalonia, about the middle of the last century. In consists of a square, laid out in twenty-four streets, composed of brick houses, all built upon the same plan, which gives it a neat appearance. The number of houses is stated at 600, and that of the inhabitants at 10,000, the major part of whom are soldiers, sailors, and persons otherwise connected with the navy. The church is a handsome structure, in the form of a Greek cross.

BARCELONNE, a town of France, in the department of the Gers, arrondissement of Mirande, on the river Adour. Population 840. Nine miles south-west of Nogaro, twenty-seven W. N. W. of Mirande.

Barcelonne, a small town of France, in the department of the Drome, arrondissement of Valence, five miles east of Valence.

Barcelonnette, a town of France, in the department of the Lower Alps, and capital of the province and valley of this name.

The arrondissement contains above 18,000 inhabitants, in four cantons. Population of the town 1900. The only objects of trade are corn and cattle, particularly sheep. Near this place is a passage across the Alps to Coni; and the district was the scene of various military operations in the campaign of 1799. Twenty-eight miles north-east of Digne, twelve miles south-east of Embrun, and fifty-six north-west of Nice. Long. 6° 44′ E., lat. 44° 23′ N.

BARCELORE, a town of Hindostan, in Canara, on the banks of a broad river, about four miles from the sea. It once belonged to the Portuguese, from whom it was captured by the Dutch, who immediately began to establish a settlement here. It was formerly the capital of an independent state, which in 1575 was ruled by a female sovereign, and the daughters of the family have since succeeded. Barcelore carries on considerable trade with the Arabs of Maskat, exporting rice, the chief product of the country, and pepper, and receiving horses and dates in return. This port is supposed to have been the Barace of the ancients. Long. 74° 46′ E., lat. 13° 45′ N.

BARCELOS, a town of Portugal, in Entre Duero-e-Minho, ten miles west of Braga, and twenty north of Porto, seated on the river Sourilla.

Barcelos, a town of Portugal, with the title of a duchy, seated on the river Cavado, over which there is a handsome bridge.

BARCES, or Berches, were formerly a kind of ship guns, not unlike sakers, only shorter, thicker in metal, and wider bored.

BARCINO, in ancient geography, a town of the Tarraconensis in Spain, and capital of the Laletani; now called Barcelona.

BARCLAY (Alexander), a learned monk in the reign of Henry VIII. Where he was born has been subject of contention among his biographers. Bale, his contemporary, says he was born in Somersetshire. There is indeed a village of his name, and a numerous family, in that county. Pits thinks he was born in Devonshire. Mackenzie is positive he was a Scotchman; but without proof, unless we admit as such his name Alexander. He was, however, educated at Oriel College, Oxford. Afterwards he went abroad, and continued some time in France, Italy, and Germany, where he acquired a competent knowledge of the languages of those countries. On his return to England he was made chaplain to his patron the bishop of Tyne, who appointed him a priest of St. Mary, at Ottery College in Devonshire. After the bishop's death he became a Benedictine monk of Ely. On the dissolution of that monastery he obtained a vicarage in Somersetshire; and, in 1549, being D. D., was presented to that of Great Baddow in Essex. In 1552 he was appointed rector of Allhallows, which he enjoyed but a short time; for he died at Croydon in June following. He improved the English language, and was one of the politest writers of his time. He composed several original works; but was chiefly remarkable for his translations from the Latin, Italian, French, and German languages. His version of Sallust's Jugurthine war is accurate, and even elegant. His lives of several saints, in heroic verse, are still in MS. His Stultifera Naris, or The ship of fools, is the most singular of his performances. It was printed by Richard Pynson at London, 1509, in folio; and contains a variety of wooden plates, which are worthy the inspection of the curious.

Barclay (John), son of William, was born

in France, at Pont-a-Mousson, and was so great favorite of the Jesuits, that they used all their efforts to engage him in their society. But his father prevented this, and carried him with him to England. Previously to this young John had already commenced author, for he had published A Commentary upon the Thebais of Statius, a Latin poem on the coronation of King James, and the first part of Euphormio, in 1603. He returned to France with his father in 1604; and after his death went to Paris, but returned soon after to London, where he was in 1606. He published The History of the Gunpowder Plot, a pamphlet of six leaves, printed at Amsterdam. He published at London in 1610, An Apology for the Euphormio, and his father's treatise De Potestate Papæ. And at Paris, in 1612, he published a book entitled Pietas, in answer to Cardinal Bellarmin, who had written against his father's book, on the power of the Pope. Two years after he published Icon Animorum. He was invited to Rome by Pope Paul V. and received a great deal of civility from Cardinal Bellarmin, though he had written against him. He died at Rome in 1621, while his Argenis was printing at Paris. This celebrated work has since gone through a great number of editions, and has been translated into most languages. M. de Peiresc, who had the care of the first edition, caused the effigies of the author to be placed before the book; and the following distich, written by Grotius, was put under it:

Gente Caledonius, Gallus natalibus, hic est,
Romam Romano qui docet ore loqui.

Barclay (Robert), one of the most eminent among the Quakers, the son of Colonel David Barclay, descended of an ancient family, was born at Edinburgh in 1648 He was educated under an uncle, who was principal of the Scots' college at Paris, where the Papists used all their efforts to draw him over to their religion. He joined the Quakers in 1669, and distinguished himself by his zeal and abilities in defence of their doctrines. His first treatise in their defence was published at Aberdeen in 1670. His father the colonel had joined them in 1666. In 1676 he published in Latin at Amsterdam his Apology for the Quakers; which is the most celebrated of his works, and esteemed the standard of the doctrine of the Quakers. His Theses Theologicæ, which were the foundation of this work, and addressed to the clergy of what sort soever, were published before the writing of the Apology, and printed in Latin, French, High Dutch, Low Dutch, and English. He translated his apology into English, and published it in 1678, with a dedication to king Charles II. which is remarkable for the uncommon frankness and simplicity with which it is written. Amongst many other extraordinary passages, we meet with the following: 'There is no king in the world, who can so experimentally testify of God's providence and goodness; neither is there any who rules so many free people, so many true christians; which thing renders thy government more honorable, thyself more considerable, than the accession of many nations filled with slavish and superstitious souls Thou hast tasted of prosperity and adversity; thou knowest what it is to be banished thy native country, to be overruled as well as to rule and sit upon the throne; and being oppressed, thou hast reason to know how hateful the oppressor is both to God and man: if, after all those warnings and advertisements, thou dost not turn unto the Lord with all thy heart, but forget him who remembered thee in thy distress, and give up thyself to follow lust and vanity, surely great will be thy condemnation.' He travelled with the famous William Penn through the greatest part of England, Holland, and Germany, and was everywhere received with the highest respect; for though both his conversation and behaviour were suitable to his principles, yet there was such liveliness and spirit in his discourse, and such serenity and cheerfulness in his deportment, as rendered him extremely agreeable to all sorts of people. He returned to his native country, spent the remainder of his life in a quiet and retired manner; and died at his house at Urie, on the 3rd of October 1690, aged forty-two. He wrote other works; particularly, 1. A Treatise on Universal Love. 2. The Anarchy of the Ranters; a turbulent sect with whom the enemies of the Quakers endeavoured to confound them. 3. A Letter to the Ministers of Nimeguen. 4. The Possibility and Necessity of the Inward Revelation of the Spirit of God, &c. &c.

Barclay (William), a learned civilian, was born in Aberdeenshire, in 1541. He spent the early part of his life, and much of his fortune, at the court of Mary Queen of Scots, from whose favor he had reason to expect preferment. In 1573 he went to France, and at Bourges commenced student of civil law under the famous Cujacius. He continued some years in that seminary, where he took a doctor's degree; and was soon after appointed professor of civil law in the university of Pont-a-Mousson, then founded by the duke of Lorraine. That prince afterwards made him counsellor of state and master of requests. Barclay, in 1481, married Ann de Malleville, a French lady, by whom he had his celebrated son, John. This youth the Jesuits would gladly have received into their society. His father refused his consent, for which reason they contrived to ruin him with the duke. Barclay embarked for Britain, where James I. offered him preferment, if he would join the church of England: but not choosing to comply, he returned to France in 1604; and, soon after, was appointed professor of civil law in the university of Angers, where he died in 1605, and was buried in the Franciscan church. He wrote elaborately in defence of the Divine Rights of Kings, in answer to Buchanan and others. His works are. 1. De Regno et Regali Potestate, &c. 2. Commentarias in tit. Pandectarum de Rebus Creditis, et de Jure-jurando. 3. De Potestate Papæ, &c. 5. Præmetia in vitam Agricolæ.

Barclay, Castle Hill of, and Barclay Moat, or Merkland of, two relics of Danish forts, on the banks of the Urr, in the parish of Colvend, in Kircudbrightshire.

BARCLOSH, an ancient edifice in the parish of Kirkgunzeon, which seems to have been built

as a place of refuge, being remote, inaccessible, and more defended by nature than art. It belongs to the family of Herries.

BARCOCHAB, or BARCOCHEBAS, a Jewish impostor, whose real name was Akiba; but he took that of Barcochab, which signifies the Son of a Star; in allusion to the prophecy of Balaam, 'There shall a star arise out of Jacob.' He proclaimed himself the Messiah; and talking of nothing but wars, victories, and triumphs, made his countrymen rise against the Romans, by which means he was the author of innumerable disorders; he ravaged many places, took a great number of fortresses, and massacred an infinite multitude of people, particularly the Christians. The emperor sent troops to Rufus, governor of Judea, to suppress the sedition. Rufus, in obedience, exercised a thousand cruelties, but could not finish his attempt. The emperor was therefore obliged to send Julius Severus, the greatest general of that time; who attained his end without a direct battle: he fell on them separately; cut off their provisions; and at last the whole contest was reduced to the siege of Bitter, in the eighteenth year of Adrian. The impostor perished there. This war cost the Romans a great deal of blood.

BARCO-LONGA. See BARCA-LONGA.

BARCONE, a short broad vessel, of a middle size, used in the Mediterranean sea for the carriage of corn, wood, salt and other provisions, from one place to another.

BARD', BARD'ED. Fr. *barder*, Dut. *barderen*, *phalerare*, phaleris ornare. This word, of so frequent occurrence in the ancient chronicles, is probably no more than a corruption of *barb*. They are apparently of similar origin, and it is certain that they are used synonymously. See BARB.

I saw the muster of the new band-men of arms, &c. some with feathers, staves, and pencils of their colours; some with sleeves and half coats; some with *bards* and staves, &c.

Burnet's History of the Reformation.

BARD', BAR'DICK, BAR'DISH, BARD'LING. The bard, was the poet, the musician, and the historian, of ancient times. The kind of song which the bards sung, is called *barditus*, by Tacitus; and *barditus* is derived by Wachter from the Germ. *barten*, *pugnare*. The bards were, therefore, originally the composers of the war-song, the song of battle, and their task was to inspire the love of martial fame, by impassioned tales of heroic deeds. The title is now given to poets without discrimination.

There is among the Irish a kind of people called *bards*, which are to them instead of poets; whose profession is to set forth the praises or dispraises of men in their poems or rhime; the which are had in high regard and estimation among them.

Spenser on Ireland.

And many *bards* that to the trembling chord,
Can tune their timely voices cunningly.

Faerie Queene.

Then you that valiant soules and slaine in warre,
Do celebrate with praise that neuer dyes,
You *bards* securely sing your elegyes. *May. Lucan.*

And indeed my jealousy hath oft vexed me with particular inquisition of whatsoever recurs, bearing not a mark of most apparent truth, ever since I found so intolerable antichronisms, incredible reports, and *bardish* impostures; as well from ignorance as assumed liberty of invention in some of our ancients. *Selden.*

The *bard* who first adorn'd our native tongue
Tun'd to his British lyre this ancient song,
Which Homer might without a blush rehearse.

Dryden.

Rapt into future times, the *bard* begun;
A virgin shall conceive, a virgin bear a son;
From Jesse's root, behold a branch arise,
Whose sacred flow'r with fragrance fills the skies;
Th' etherial spirit o'er its leaves shall move,
And on its top descends the mystic dove.

Pope's Messiah.

By Pella's *bard*, a magic name,
By all the griefs his thoughts could frame,
Receive my humblest rite:
Long, Pity, let the nations view
Thy sky-worn robes of tenderest blue,
And eyes of dewy light!

Collin's Ode to Pity.

Faith let him 'scape, let love and fame survive,
With your kind sanction keep his scenes alive;
Try to approve (applaud we will exempt)
Nor crush the *bardling* in this hard attempt.

Cunningham. A Prologue to Love and Fame.

The Welsh, kept in awe as they were by the Romans, harassed by the Saxons, and eternally jealous of the attacks, the encroachments, and the neighbourhood of aliens, were on this account attached to their Celtic manners; this situation, and these circumstances, inspired them with a pride and an obstinacy for maintaining a national distinction, and for preserving their ancient usages, among which the *bardic* profession is so eminent.

Warton's History of English Poetry.

Their ashes flew;
No marble tells us whither. With their names
No *bard* embalms and sanctifies his song;
And history, so warm on meaner themes,
Is cold on this.

Cowper's Task.

BARD, in antiquity, denotes one who was a poet by genius and profession; and 'who sung of the battles of heroes, or the heaving breasts of love.' Ossian's poems, i. 37. Lord Kaimes justly observes, Sketches i. sec. 2. that the curiosity of man is great with respect to the transactions of his own species; and when such transactions are described in verse, accompanied with music, the performance is enchanting. An ear, a voice, skill in instrumental music, and above all the poetical genius, are requisite to excel in that complicated art. As such talents are rare, the few that possessed them were highly esteemed; and hence the profession of a bard, which, besides natural talents, required more culture and exercise than any other known art.

BARDS anciently were capital persons at every festival and at every solemnity. Their songs, which, by recording the achievements of kings and heroes, animated every hearer, must have been the entertainment of every warlike nation. Demodocus is mentioned by Homer as a celebrated bard; and Phemius, another bard, is introduced by him deprecating the wrath of Ulysses, Odyss vii. and urging him to

—— spare the poet's ever gentle kind.
A deed like this thy future fame would wrong,
For dear to gods and men is sacred song.
Save then the poet, and thyself reward
'Tis thine to merit, mine is to record.'

Cicero reports, that at Roman festivals, anciently, the virtues and exploits of their great men were sung. The same custom prevailed in Peru and Mexico, as we learn from Garcilasso and other authors. We have for our authority Father Gobien, that even the inhabitants of the Marian islands have bards, who are greatly admired, because in their songs are celebrated the feats of their ancestors.

Bards, Celtic, British, &c. In no part of the world did the profession of bard appear with such lustre as in Gaul, in Britain, and in Ireland. Wherever the Celtæ or Gauls are mentioned by ancient writers, we seldom fail to hear of their druids and their bards; the institution of which two orders, was the capital distinction of manners and policy. The druids were philosophers and priests; the bards their poets, and recorders of heroic actions: and both these orders seem to have subsisted among them, as members of the state from time immemorial. The Celtæ possessed, from many remote ages, a system of discipline and manners, which appear to have had a deep and lasting influence. Ammianus Marcellinus, lib. xv. c. 9. gives them this testimony, that they cultivated the study of the most laudable arts; introduced by the bards, who sung in heroic verse the gallant actions of illustrious men; and by the druids, who lived together in colleges or societies, after the Pythagorean manner, and philosophising upon the highest subjects, asserted the immortality of the soul. Though Cæsar, in his account of Gaul, does not expressly mention the bards, yet it is plain, that under the title of Druids, he comprehends that whole college or order; of which the bards, who probably were the disciples of the druids, undoubtedly made a part. According to his account, the druidical institution first took rise in Britain, and passed from thence into Gaul; so that they who aspired to be thorough masters of that learning were wont to resort to Britain. He adds too, that such as were to be initiated among the Druids, were obliged to commit to their memory a great number of verses, insomuch that some employed twenty years in this course of education; and that they did not think it lawful to record these poems in writing, but sacredly handed them down by tradition from race to race. So strong was the attachment of the Celtic nations to their poetry and their bards, that amidst all the changes of their government and manners, even long after the order of the Druids was extinct, and the national religion altered, the bards continued to flourish; not as a set of strolling songsters, like the Greek Ἀοιδοι or rhapsodists, in Homer's time, but as an order of men highly respected in the state, and supported by a public establishment. We find them, according to Strabo, and Diodorus, before the age of Augustus; and we find them remaining under the same name, and exercising the same functions as of old, in Ireland, and in the north of Scotland, almost down to our own times. It is well known, that in both these countries, every regulus or chief, had his own bard, who was considered as an officer of rank in his court.

Of the honor in which the bards were held, many instances occur in Ossian. They were the ambassadors between contending chiefs; and their persons were held sacred. 'Cairbor feared to stretch his sword to the bards, though his soul was dark. Loose the bards (said his brother Cathmor), they are sons of other times. Their voice shall be heard in other ages, when the kings of Temora have failed.' Ossian ii. 22. They and the Druids were exempted from taxes and military services, even in times of the greatest danger: and when they attended their patrons in the field, to record and celebrate their great actions, they had a guard assigned them. At all public assemblies they were seated near the person of the king or chieftain, and sometimes even above the greatest of the nobility and chief officers of the court. Nor was their profession less lucrative than it was honorable. Besides the valuable presents which they occasionally received from patrons, they had estates in land allotted for their support. So great was the veneration which the princes of those times entertained for their poets, and so highly were they delighted with their strains that they sometimes pardoned even their capital crimes for a song. We may reasonably suppose that a profession so honorable and advantageous would not be deserted. It was indeed much cultivated, and the accounts which we have of the number of bards in some countries, particularly in Ireland, are hardly credible. We often read, in the poems of Ossian, of 100 bards belonging to one prince, singing and playing in concert for his entertainment. Every chief bard, who was called allah redan, or doctor in poetry, was allowed to have thirty bards of inferior note constantly about his person; and every bard of the second rank was allowed a retinue of fifteen poetical disciples.

Though the ancient South Britons had originally the same taste and genius for poetry with those of the north, yet none of their poetical compositions have been preserved. Nor can we be surprised at this. After the provincial Britons had submitted to the Roman government, yielded up their arms, and lost their martial spirit, they could take little pleasure in hearing or repeating the songs of their bards, in honor of the glorious achievements of their brave ancestors. The Romans also, though they did not exercise the same barbarous policy, which was long after practisedby Edward I. of putting the bards to death, would at least discourage them, and discountenance the repetition of their poems. These sons of the song being thus persecuted by their conquerors, and neglected by their countrymen, either abandoned their country or their profession; and their songs, being no longer heard, were soon forgotten. It is probable that the ancient Britons, as well as many other nations of antiquity, had no idea of poems that were made only to be repeated, and not to be sung to the sound of musical instruments. In the first stages of society in all countries, the two sister arts of poetry and music seem to have been always united; every poet

was a musician, and sung his own verses to the sound of some musical instrument. This, we are directly told by two writers of undoubted credit, was the case in Gaul, and consequently in Britain, at this period. 'The bards,' says Diodorus Siculus, lib. v. sect, 31, 'sung their poems to the sound of an instrument not unlike a lyre.' 'The bards,' according to Ammianus Marcellinus, lib. xv. c. 9, 'celebrated the brave actions of illustrious men in heroic poems, which they sung to the sweet sound of the lyre.' This account is confirmed by the general strain, and by many particular passages, of the poems of Ossian. 'Beneath his own tree, at intervals, each bard sat with his harp. They raised the song and touched the string, each to the chief he loved. Vol. ii. p. 112. The invention of writing made a considerable change in the profession of the bards. It is now agreed, that no poetry is fit to be accompanied with music, but what is simple: a compiicated thought, or description, requires the utmost attention, and leaves none for the music; or, if it divides the attention, it makes but a faint impression. The simple operas of Quinault bear away the palm from every thing of the kind composed by Boileau or Racine, who were poets of a higher order. But when a language is enriched with variety of phrases, fit to express the most elevated thoughts, men of genius aspired to the higher strains of poetry, leaving music and song to the bards; which distinguished the profession of a poet from that of a bard. Homer, in one sense, may be termed a bard; for in that character he strolled from feast to feast. But he was not a bard in the original sense; he, indeed, recited his poems to crowded audiences; but his poems are too complex for music, and he probably did not sing them, nor accompany them with the lyre. The troubadours of Provence were bards in the original sense, and made a capital figure in the days of ignorance, when few could read, and fewer write. In later times the songs of the bards were taken down in writing, which gave every one access to them without a bard; and the profession sunk by degrees into oblivion. Among the Highlanders of Scotland reading and writing, in their own tongue, is not common even at present; and that circumstance supported long the bard profession among them, after it was dropt among the neighbouring nations.

Among the ancient British bards the most celebrated is the great Merlyn, whose true name, according to Lhuyd, is Merdhym. The genealogical sonnets of the Irish bards are still the chief foundations of the ancient history of Ireland. In the Highlands of Scotland there are considerable remains of many of the compositions of their old bards still preserved. But the most genuine entire and valuable remains of the works of the ancient bards, and perhaps the noblest specimen of uncultivated genius are the poems of Ossian the son of Fingal, a king of the Highlands of Scotland, who flourished in the second or third century; collected by Mr. M'Pherson, and by him translated from the Erse, or Gaelic, language into English.

BARDÆ, in antiquity, housings for horses.

BARDANA, or Burdock. See Arctium.

BARDARIOTÆ, in antiquity, a kind of ancient guards attending the Greek emperor, armed with rods, with which they kept off the people from crowding too near the prince when on horseback. Their captain or commander, was denominated primivergius. The word was probably formed from the Bardæ, which see.

BARDAS, the brother of the empress Theodora, and uncle of the famous Photius, is said to have had no other good quality besides that of loving the sciences, which he established in the Eastern empire; for he was treacherous, cruel, and ambitious. In A. D. 856 he assassinated Theoctistes, general of the emperor Michael's forces, and obtained his post. He caused the disgrace of the Empress Theodora; and St. Ignatius, patriarch of Constantinople, reproaching him for his vices, he had him deposed in 848, to make room for Photius. He was assassinated in 866 by Basilius, afterwards emperor.

BARDED, in heraldry, is used in speaking of a horse that is caparisoned. He bears sable cavalier d'or, the horse barded, argent.

BARDELLE, in the menage, a saddle made in form of a great saddle, but of cloth stuffed with straw, and tied tight down with packthread, without either leather, wood, or iron. In Italy they trot their colts with such saddles; and those who ride them are called Cavalcadours, or Scozone.

BARDESANES, a Syrian of Edessa in Mesopotamia, born in the middle of the second century, who became eminent, after his conversion to Christianity, for his zeal against heretics; against whom, we are informed by St. Jerome and Eusebius, he wrote a multitude of books; yet he himself fell into the errors of Valentinus, to which he added some others of his own. He taught that the actions of men depend altogether on fate, and that God himself is subject to necessity.

BARDESANISTS, a sect of ancient heretics, thus denominated from their leader Bardesanes. They went further than their teacher, and denied the resurrection of the body, and the incarnation and death of our Saviour; holding that these were only apparent or fantastical. They maintained that the supreme God, being free from all imperfection, created the world and its inhabitants pure and incorrupt: that the prince of darkness, who is the fountain of all evil and misery, enticed men to sin; in consequence of which, God permitted them to be divested of those ethereal bodies, with which he had endued them, and to fall into sluggish and gross bodies formed by the evil principle: and that Jesus descended from heaven, clothed not with a real but aerial body, to redeem mankind from that body of corruption which they now carry about them; and that he will raise the obedient to mansions of felicity, clothed with aerial vehicles, or celestial bodies.

BARDEWICK, a town of Germany, in the circle of Lower Saxony, and duchy of Lunenburg; formerly a very large place, but being ruined in 1189, by the Duke of Saxony, has never yet recovered itself. It is seated on the Ilmenau, seven miles north-east of Lunenburg, and seventeen south-east of Hamburg. It belongs to the electorate of Hanover.

BARD, a small fort and town in the valley of Aosta, in Piedmont. The fort commanded the pass from the Valais into Piedmont. It was taken by Buonaparte in 1800, after his passage of the Great St. Bernard, and is now dismantled.

BARDI, a town of Italy, in the duchy of Placentia, on the Genoese frontier. It is near the river Cevo, has a magnificent castle, and is thirty miles south-west of Parma.

BARDOWIE, Loch, a lake of Stirlingshire, in the parish of Baldernock, extending about seventy acres, and containing plenty of pike and perch. The mansion-house of Bardowie lies within a few paces of it.

BARDSEY, an island in the Irish sea, on the coast of Wales, about two miles long, and one broad, with a small harbour on the south-east side. There is good anchorage within the bay, but the entrance is difficult for large ships. It forms the north point of Cardigan bay, and formerly contained a well-endowed monastery. Long. 5° 4′ W., lat. 52° 48′ N.

BARDT, a river of Germany, in Pomerania.

Bardt, a strong and rich town of Germany, in the duchy of Pomerania, with a castle and spacious harbour. It was subject to the Swedes till 1815, but now belongs to Prussia; and is situated near the Baltic sea, twelve miles west by north of Stralsund.

BARDUS, a druid, the son of Dryis, and the fifth king of the Celtæ.

BARE′, *v.* & *adj.*
Bare′bones,
Bare′faced,
Barefa′cedly,
Barefaced′ness,
Bare′foot,
Bare′gnawn,
Bare′head,
Bare′legged,
Bare′ly,
Bare′necked,
Bare′ness,
Bare′worn.

Heb. *parah*, to lay bare, and *bar*, pure, Goth. *bairhtjan*, Germ. *baren*, Dut. *baeren*, old Sax. *abarian*. It signifies the absence of ornament, of concealment. It is the condition of nudity, of destitution, of leanness and poverty, of rigid completeness, without any the least appendage. The verb represents the act of stripping off, of uncovering, of bringing to light and exposing what was hidden, of rendering defenceless. *Barefaced* denotes the absence of all disguise, or all shame; when applied to express impudence, it characterises the individual as more than ordinarily lost to all sense of decorum.

Him thought he rode al of the newe get;
Dischevele; sauf his cappe, he rode all *bare*;
Swiche glaren eyen hadde he as an hare. *Chaucer.*

Thereto he hath a groom of evil guise,
Whose scalp is *bare*, that bondage doth bewray,
Which pols and pils the poor in piteous wize,
But he himself upon the riche doth tyrannize.
Spenser.

For other meed may hope for none of mee,
To whom nought else but *bare* life doth remaine,
And that so wretched one as ye do see,
Is liker to lingering death than loathed life to bee.
Id.

How many flies in hottest summer's day,
Do seize upon some beast, whose flesh is *bare*,
That all the place with swarmes do overlay,
And with their little stings do felly fare
So many theeves about him swarming are,
All which do him assayle on every side,
And sore oppress, ne any him do spare. *Id.*

You have an exchequer of words, and no other treasure for your followers; for it appears by their *bare* liveries, that they live by your *bare* words.
Shakspeare.

So you serve us
Till we serve you; but when you have our roses,
You *barely* leave our thorns to prick ourselves,
And mock us with our *bareness*. *Id.*

To feed were best at home,
From thence, the sauce to meat is ceremony,
Meeting were *bare* without it. *Id.*

For their poverty, I know not where they had that; and for their *bareness*, they never learned that of me.
Id.

She must have a husband;
I must dance *barefoot* on her wedding-day. *Id.*

Ambitious love hath so in me offended,
That *barefoot* plod I the cold ground upon
With sainted vow. *Id.*

The duke of Lancaster is dead;
And living too, for now his son is duke——
——*Barely* in title, not in revenue.
Id. Richard II.

He *bareheaded*, lower than his proud steed's neck,
Bespoke them thus. *Id.*

Here comes lean Jack, here comes *barebone*; how long is it ago, Jack, since thou sawest thy own knee?
Id. Henry IV.

Your French crowns have no hair at all, and then you will play *barefaced*.
Id. Midsummer Night's Dream

Going to find a *barefoot* brother out,
One of our order. *Id. Romeo and Juliet.*

Know, my name is lost,
By treason's tooth *baregnawn* and cankerbit.
Id. King Lear.

The external administration of his word, is as well by reading *barely* the Scripture, as by explaining the same. *Hooker.*

A desire to draw all things to the determination of *bare* and naked Scripture, hath caused much pains to be taken in abating the credit of man. *Id.*

That which offendeth us, is the great disgrace which they offer unto our custom of *bare* reading the word of God. *Id.*

Were it for the glory of God, that the clergy should be left as *bare* as the apostles, when they had neither staff nor scrip; God would, I hope, endue them with the self-same affection. *Id. Preface.*

He *barely* nam'd the street, promis'd the wine,
But his kind wife gave me the very sign. *Donne.*

He himself, with a rope about his neck, *barefooted*, came to offer himself to the discretion of Leonatus.
Sidney.

Next, before the chariot, went two men *bareheaded*.
Bacon.

There is a fabulous narration, that an herb groweth in the likeness of a lamb, and feedeth upon the grass, in such sort as it will *bare* the grass round about.
Id. Natural History.

Though the lords used to be covered whilst the commons were *bare*, yet the commons would not be *bare* before the Scottish commissioners; and so none were covered. *Clarendon.*

The animosities increased, and the parties appeared *barefaced* against each other. *Id.*

According to their growth and years, they did change the exercises of their bodies; they did shave their heads, they went *bare-legged*, they were constrained to play naked together the most part of their time.
North. Plutarch

Being summer he would go out *bare-necked* to the waste to work in his ground among his servants and other workmen. *Id.*

How they stood
Their glory wither'd: as when heaven's fire
Hath scath'd the forest oaks, or mountain pines,
With singed top their stately growth, though *bare*,
Stands on the blasted heath. *Milton.*

God said,
Be gathered now, ye waters under heav'n,
Into one place, and let dry land appear.
Immediately the mountains huge appear
Emergent, and their broad *bare* backs upheave
Into the clouds, their tops ascend the sky. *Id.*

He scarce had said, when the *bare* earth, till then
Desert and *bare*, unsightly, unadorn'd,
Brought forth the tender grass, whose verdure clad
Her universal face with pleasant green. *Id.*

Nor are men prevailed upon by *bare* words only, through a defect of knowledge; but carried, with these puffs of wind contrary to knowledge. *South.*

Were it stripped of its privileges, and made as like the primitive church for its *bareness* as its purity, it could legally want all such privileges. *Id.*

He held a stirrup, while the knight,
From leathern *barebones* did alight. *Hudibras.*

He *bar'd* an ancient oak of all her boughs;
Then on a rising ground the trunk he plac'd.
Dryden.

Then stretch'd her arms t' embrace the body *bare*;
Her clasping hands inclose but empty air. *Id.*

It is most certain, that *barefaced* bawdry is the poorest pretence to wit imaginable. *Id.*

In the old Roman statues, these two parts were always *bare*, and exposed to view as much as our hands and face. *Addison.*

Envoys describe this holy man, with his Alcaydes about him, standing *barefoot*, bowing to the earth. *Id.*

For virtue, when I point the pen,
Bare the mean heart that points beneath a star;
Can there be wanting to defend her cause,
Lights of the church, or guardians of the laws? *Pope.*

Making a law to reduce interest, will not raise the price of land; it will only leave the country *barer* of money. *Locke.*

Though only some profligate wretches own it too *barefacedly*, yet, perhaps, we should hear more, did not fear tie people's tongues. *Id.*

If to some common's fenceless limits stray'd,
He drives his flocks to pick the scanty blade,
Those fenceless fields the sons of wealth divide,
And even the *bare-worn* common is deny'd.
Goldsmith. The Deserted Village.

Nor stoop'd at barren *bare* necessity;
But still advancing bolder, led him on,
To pomp, to pleasure, elegance, and grace,
And breathing high ambition through his soul,
Set science, wisdom, glory in his view,
And bade him be the Lord of all below. *Thomson.*

O may no winter season, *bare* and hoary,
See it half finished: but let autumn bold,
With universal tinge of sober gold,
Be all about me when I make an end.
Keat's Endymion.

How well such deed becomes the turban'd brave—
To *bare* the sabre's edge before a slave!
Byron's Corsair.

BAREFOOT AUGUSTINES, BAREFOOT CARMELITES, are religious of the order of St. Austin and St. Carmel, who live under a strict observance, and go without shoes, like the Capuchins. There are barefoot fathers of mercy. Formerly there were barefoot Dominicans, and even barefoot nuns of the order of St. Augustin.

BAREFOOT FESTIVALS. The Greeks, Romans, and Barbarians, have a feast called nudipedalia, or the barefoot festival. The Abyssinians never enter their churches, nor the palaces of kings and great men, but barefooted.

BAREFOOTED, in antiquity. Sagittarius has a dissertation on those who went barefooted among the ancients, De Nudipedalibus Veterum; wherein he treats 1. of such as went barefooted in journeys, either out of choice or necessity: 2. of barefooted religious penitents; and, 3. of the Leviri.

BAREGES, or BARREGES, a rugged valley of Gascony, now included in the department of the Upper Pyrenees, arrondissement of Argellez. The village of Bareges, or Barreges les Bains, lies at the foot of the Pyrenees, contains about 60 houses, and 670 inhabitants, and is famed for its mineral waters, the principal ingredient in which is sulphurate of potash. The springs are of different degrees of heat, from 73° to 120° of Fahrenheit. Their water is limpid, unctuous, and chiefly recommended in consumptions, and in rheumatic and cutaneous diseases; they are used both for bathing and drinking. The village is ten miles south of Bagneres. Long. 0° 8′ E., lat. 42° 53′ N.

BAREHEADED WOMEN, in antiquity. The Roman women, in times of public distress and mourning, went bareheaded, with their hair loose.

BAREILY, a district of Hindostan, to the east of the Ganges, between the 27th and 29th degrees of northern latitude. Under the Mogul government it was included in the province of Delhi, but was in fact a part of Kuttaher; in modern times known by the appellation of Rohilcund. It is very fertile, and well watered. The principal towns are Bareily, Anopsheher, Budayoon, Pillybeet, Moradabad, Rampoor, Sumbul, and Amroah. Towards the end of the seventeenth century this country was taken possession of by the Afghan chiefs of the tribe of Roh, and remained in their possession till 1774, when it was conquered by Shuja Addowleh, under whose, and his successor's jurisdiction, it was cruelly harassed and depopulated; but, having been ceded to the British in 1802, it is daily recovering.

BAREILY, a city of Hindostan, and capital of the above district, is situated on the banks of the Sunkra river, about forty miles east of the Ganges. It was the capital of Hafiz Rahmut, the Rohilla chief, slain at the battle of Cutterah in 1774: it is a large and populous town, and the seat of the British judicial establishment of the province. Long. 79° 21′ E., lat. 28°.

BAREITH, a ci-devant margravate of Germany, in the east division of Franconia, subject to the Brandenburg family, and thence styled Brandenburg-Bareith.

BAREITH, a town of Germany in Franconia, in the margravate, with a famous college belonging to the margrave of Brandenburgh-Bareith. It is fifteen miles south by east of Culmbach.

BARENTS (Dieterich), an excellent painter, born at Amsterdam, and the son of an industrious but middling artist. He studied in Italy, and became the favorite disciple of Titian, with whom he lived a long time; but at length returned to Amsterdam,

where he performed many extraordinary pieces. He died in 1582, aged forty-eight.

BARENTON, a town of France, in the department of the Channel, twenty miles E. S. E. of Avranches.

BARETTI (Joseph), an ingenious writer of the eighteenth century, was the son of an architect at Turin. We have no account of the early part of his life; but his writings show that he had travelled through various countries. He came to England in 1750; and, in a short time, he acquired such a knowledge of the English language as to write it with facility and correctness. Becoming acquainted with Dr. Johnson about 1753, he was by him introduced, as a teacher of the Italian language, to the family of Mr. Thrale. In 1760 he went back to Italy, and commenced a periodical work, entitled Frusta Litteraria, which was published at Venice; but the freedom of sentiment which appeared in it, giving offence, obliged him to leave that country, and he returned again to England. He was tried at the Old Bailey, in 1769, for killing a man who had assaulted him in the Haymarket, and was acquitted. In 1770 he published his Travels through France, Spain, Portugal, and Italy, in four vols. 8vo. When the Royal Academy was established, he was chosen secretary; and during Lord North's administration he obtained a pension. He died in 1789, aged about seventy-three. His temper was pleasant, and his disposition liberal. His works are: 1. A Dissertation on the Italian Poetry; 2. An Introduction to the Italian Language; 3. The Italian Library, 8vo.; 4. A Dictionary, English and Italian, 2 vols. 4to.; 5. A Grammar of the Italian Language, 8vo.; 6. An Account of the Manners and Customs of Italy, 2 vols. 8vo.; 7. An Introduction to the most useful European Languages, 8vo.; 8. A Dictionary English and Spanish, 4to.; 9. Tolondron, Speeches to John Bowle, about his edition of Don Quixote, 8vo.; and other tracts.

BAR-FEE, a fee of twenty pence, which every person acquitted of felony pays the gaoler.

BARFLEUR, a Cape of France, in the department of the Channel, twelve miles east of Cherbourg. Near this cape part of the French navy was destroyed in 1692, the day after the victory of La Hogue, obtained by the confederate fleet under Admiral Russel.

BARFLEUR, a town of France in the department of the Channel, arrondissement of Valognes. It contains about 140 houses, and 900 inhabitants. Its harbour, which is now choked up with sand, was in former times the best on the coast. Here William the Conqueror equipped the expedition which effected the conquest of England. In the year 1346 it was taken and destroyed by the English army, in the same campaign in which they fought the battle of Cressy. Since that time the port has been neglected, and is now frequented only by small vessels. The trade is confined to fish, fresh and salted. Twelve miles east of Cherbourg. Long. 1° 10′ W., lat. 49° 40′ N.

BARGA, a town of Italy, in the grand duchy of Tuscany, on the Serchio. It is the capital of a vicariat, bordering on the principality of Lucca, and contains 9000 inhabitants. In the neighbouring Appenines is found beautiful jasper. Six miles from Lucca.

BAR'GAIN, *v.* & *n.* } See to BAR. Goth. *bairgan*, Ang.-Sax. *beorgan*
BAR'GAINING, } *birgan byrgan*, Welsh
BAR'GAINED, } *bargen*, Fr. *bargaigne*.
BAR'GAINER. }

To make a confirmed agreement. A contract either with or without purchase, usually held binding.

I do thee no wrong. Did I not *bargayne* with thee, so that thou shouldeste haue a denarye for thy dayes laboure? Thou haste done thy laboure, thou haste thy couenaunte: I have nothing more to doe with thee. *Udall. Matthew*, chap. xx.

Henry is able to enrich his queen,
And not to seek a queen to make him rich.
So worthless peasants *bargain* for their wives,
As market-men for oxen, sheep or horse.
Shakspeare.

No longer than we well could wash our hands,
To clap this royal *bargain* up of peace——
Heaven knows they were besmeared and overstained
With slaughter's pencil. *Id.*

No *bargains* break that are not this day made. *Id.*

Hold, sir, for God's sake: now your jest is earnest: Upon what *bargain* do you give it me. *Id.*

What is marriage but a very *bargain?* wherein is sought alliance, or portion, or reputation, with some desire of issue; not the faithful nuptial union of man and wife. *Bacon.*

For those that are like to be in plenty, they may be *bargained* for upon the ground. *Id.*

There was a difference between courtesies received from their master and the duke; for that the duke's might have ends of utility and *bargain*, whereas their master's could not. *Id.*

No more can be due to me,
Than at the *bargain* made was meant. *Donne.*

Where sold he *bargains*, whipstitch? *Dryden.*

As to *bargains*, few of them seem to be excellent, because they all terminate in one single point. *Swift.*

No maid at court is less ashamed,
Howe'er for selling *bargains* famed. *Id.*

Give me but my price for the other two, and you shall even have that into the *bargain*. *L'Estrange.*

He who is at the charge of a tutor at home, may give his son a more genteel carriage, with greater learning into the *bargain*, than any at school can do. *Locke.*

It is possible the great duke may *bargain* for the republic of Lucca, by the help of his great treasures. *Addison on Italy.*

All offer incense at my shrine,
And I alone the *bargain* sign. *Gay.*

What is all righteousness that men devise,
What! but a sordid *bargain* for the skies;
But God as soon would abdicate his own,
As stoop from heav'n to sell the proud a throne.
Cowper.

It is adjusted, however, not by any accurate measure, but by the higgling and *bargaining* of the market, according to that sort of rough equality which though not exact, is sufficient for carrying on the business. *Smith. Wealth of Nations.*

BARGAIN, in the old Scottish writers, is applied to an armed fight or battle. A battle where both parties have settled the preliminaries of weapons and manner of fighting, and are so far on equal terms of security and defence. In this sense it is used by Chaucer in the Romaunt of the Rose.

This is the strife, and eke the affraie,
And the batell that lasteth aie,
This *bargaine* end may neuer take
But if that she thy peace wil make.

BARGAIN AND SALE, in the English law, requires to be farther explained. It is a contract whereby the bargainer, for some pecuniary consideration, bargains and sells, that is, contracts to convey the land of the bargainee; and becomes by such bargain a trustee for, or seized to the use of, the bargainee; and then the statute of uses completes the purchase: or, as it hath been expressed, the bargain first vests the use, and then the statute vests the possession. But as it was foreseen that conveyances thus made would want all those benefits of notoriety which the old common law assurances were calculated to give; to prevent clandestine conveyances of freeholds, it was enacted by statute 27 Hen. VIII. c. 16. that such bargains and sales should not enure (be available) to pass a freehold, unless made by indenture, and enrolled within six months in one of the courts of Westminster-hall, or with the custos rotulorum of the county. Clandestine bargains and sales of chattel interests, or leases for years, were thought not worth regarding, as such interests were very precarious till about six years before; which also occasioned them to be overlooked in framing the statute of uses: and therefore such bargains and sales are not directed to be enrolled. This omission has given rise to the species of conveyance by lease and release.

BARGAINS, in commerce, are distinguished, at Amsterdam, into three kinds, viz.

BARGAINS, CONDITIONAL, for goods which the seller has not yet in his possession; but which he knows have been bought for him by his correspondents abroad, and which he obliges himself to deliver to the buyer, on their arrival, at the price and conditions agreed on.

BARGAINS, FIRM, those wherein the seller obliges himself to deliver to the buyer a certain quantity of goods, at the price and in the time agreed on.

BARGAINS, OPTIONAL, those wherein a dealer obliges himself, in consideration of a premium received in hand, either to deliver or take a certain quantity of goods at a fixed price, and within a time limited: but with a liberty of not delivering or not receiving them, if he thinks proper, upon forfeiture of their premium.

BARGAINS, FOREHAND, are those wherein goods are bought or sold, to be delivered at a certain time afterwards, some part of the price being advanced.

BAR'GE, BAR'GER, BAR'GEMAN. See to BAR. Dut. *bargie*, low Lat. *barga*, Goth. *bairgan*, to strengthen. A barge, says Tooke, is a strong boat, and this is still its widest meaning, as in coal barge, &c. &c.; but it has also grown to mean, not merely a boat massy and sea worthy, but one of pleasure; light, airy, and elegant, more remarkable for beauty than strength.

So mykell was þat *barge*, it might not lightly saile,
And so heuy of charge, and þe wynde gan faile.
R. Brunne.

He knew wel alle the havens, as they were,
Frō Gotland to the Cape de Finistere,
And euery creke in Bretagne and in Spaine;
His *barge* ycleped was the Magdelaine.
Chaucer. Prologu.

'Many wafarers make themselves glee, by putting the inhabitants in mind of this privilege; who again, like the Campellians in the north, and the London *bargers*, forslow not to baigne them.
Carew's Survey of Cornwall.

ENO. I will tell you,
The *barge* she sat in, like a burnish'd throne,
Burnt on the water; the poop was beaten gold,
Purple the sails; and so perfumed, that
The winds were lovesick with them; the oars were silver;
Which to the tune of flutes kept stroke, and made
The water, which they beat, to follow faster,
As amorous of their strokes.
Shakspeare. Antony and Cleopatra.

Plac'd in the gilded *barge*,
Proud with the burden of so sweet a charge;
With painted oars the youths begin to sweep
Neptune's smooth face. *Waller.*

BARGES are vessels of state, furnished with elegant apartments, canopies, and cushions; equipped with a band of rowers, and decorated with flags and streamers: they are generally used for processions on the water by noblemen, officers of state, or magistrates of great cities. Those annually exhibited on the Thames, at the election of the lord mayor of London, are uncommonly elegant.

BARGES for the use of admirals and captains of ships of war, are smaller and of a lighter frame, and may be easily hoisted into or out of the ships to which they belong.

BARGES OF BURDEN, are for lading and discharging ships, and removing their cargoes from place to place in a harbour.

BARGE, in ornithology, a name used by some authors for the godwit or stone-plover; the ægocephalus.

BARGE, or BARGES, a town of Piedmont in the district of the Four Valleys; seven miles south of Pinarolo, or Pignerol.

BARGE-COUPLES, in architecture, a beam mortised into another, to strengthen the building.

BARGE-COURSE, with bricklayers, a term used for that part of the tiling which projects over, without the principal rafters, in all sorts of buildings where there is either a gable or a kirkin head.

BARGH-MASTER, BARMER, or BAR-MASTER, from beirg-meister, Ger. i. e. master of mines; in the royal mines, the steward or judge of the barmote. The bar-master keeps two great courts of barmote yearly; and every week a small one, as occasion requires.

BARGHMOTE, or BARMOTE, a court which takes cognizance of causes and disputes between miners. By the custom of the mines, no person is to sue any miner for ore debt, or for ore, or for any ground of variance, but only in the court of barmote, on penalty of forfeiting the debt, and paying the charges at law.

BARGRAVE (Isaac), an English divine, born in 1586, and educated at Clarehall, Cambridge. He was appointed chaplain to James I.; and in 1625 was made dean of Canterbury. When the civil war commenced he was imprisoned in the Fleet, by colonel Sandys, a man whom he had saved from the gallows! He died in 1642.

BARI, a province in the kingdom of Naples, which has the Gulf of Venice to the north, the Terra d' Otranto to the east, Basilicata to the south, and Capitanata to the west. It contains 1760 square miles, and 290,000 inhabitants, and is rich in grain, wine, oil, cotton, fruit, and saffron. The chief town, called Bari, lies on the Gulf of Venice, and is well fortified; it is a trading place of some consequence, with 18,000 inhabitants. The principal objects of its trade are wine, oil, and fruit; and a great deal of linen is woven here for inland consumption. It has the title of a duchy, and is an archbishop's see. Eighteen miles east of Trani, 120 E. N. E. of Naples. Long. 16° 52′ E., lat. 41° 15′ N.

BARI, a town of Hindostan, in the province of Bejapoor, thirty miles south-west of Raibaug.

BARJAPOOR, BEJAPOOR, or BIJA-PUR, (a corruption of Vijaya-puri, the impregnable, the ancient name of the capital;) is a large province in the Deccan, extending from the fifteenth to the nineteenth degrees of north latitude. It is bounded on the north by the province of Aurungabad, south by the Toombuddra River and North Canara district, east by Aurungabad and Beeder, and on the west by the Indian Ocean; including a superficial area of 350 miles in length, by 200 the average breadth. The chain of the western Ghauts traverses the province at a moderate distance from the coast, with which it is in perfect parallel; the surrounding region is mountainous, but the eastern part is more level, watered by several fine rivers, particularly the Krishna, the Beemah, the Toombuddra, and the Gutpurba; the latter of which, before the year 1790, formed the separating boundary between the dominions of Tippoo and the Mahrattas. The productions of this province are the same as of the Deccan gnerally; the internal traffic is considerable, and the banks of the Beemah, celebrated all over the continent for their superior breed of horses, supply the best cavalry in the Mahratta armies.

The most remarkable natural features of the province are rivers, of which the Krishna, deriving its name from the dark color of its waters, or from its mythological connexion with the Indian Apollo, the Crishna of the Hindoos, is the most important. Emerging from the western Ghauts, forty-two miles from the coast, this river takes a south-west direction, falls in with the Warnah about Merich, and then rolling its vast stream to the east receives the principal rivers which diversify this part of India in its course, and at last empties itself by three channels into the Bay of Bengal. Although from its lofty banks, which do not admit of extensive irrigation, this river contributes less to the fertilisation of the country than others of inferior importance, it is perhaps more abundant in gems than any other river of India; gold, chalcedonies, cats-eyes, onyxes, and even diamonds, being found in its bed.

Of the province generally, four-fifths have long appertained to the Mahrattas, and the remainder to the government of Nizam. The Peshwa, though nominal lord of the whole, has little effective jurisdiction. The population is estimated at seven millions, of whom one-twentieth part are Mahommedans, and the rest Hindoos of the Brahminical order. Two languages generally prevail; the Canara on the north, the Mahratta on the south of the river Krishna; which also forms an interesting line of separation between the two different styles of building, the houses to the south being covered with clay or mud, and flat roofed, those to the north having the roofs pitched and thatched.

At the conclusion of the war between the British and Sindia in 1804, the Mahratta territories of this province exhibited a scene of the greatest anarchy. The authority of the Peshwa was resisted by the chief of every petty village. The chiefs of the various banditti were almost innumerable; amongst whom Goklah, Appah Saheb, and Bala Saheb (the sons of Purseram Bhow, and heads of the Putwurden family), Appah Dessaye, Furkiah, Bapoojee Sindiah, Madarow Rastiah, the Rajah of Colapoor, Futteh Sing Bhoonslah, Chintamuny Row (the nephew of Purseram Bhow), Tantia, Punt Pritty Niddy, and others, presented formidable obstacles to the return of peace and tranquillity. The country had likewise been otherwise ravaged and depopulated, from the laxity of its internal government, and the rapid succession of governors appointed by the Peshwa, the preceding one uniformly opposing his successor. The chiefs above-named although commonly distinguished by the name of 'Southern Jaghiredars,' were properly the Serinjamy Sirdars of the Poonah state; the possession of whose lands being granted for the payment of troops employed in state service, might be changed annually; although in this instance the lands themselves, with several other species of property, had been retained for many years.

Amidst the confusions consequent on so embarrassed a state of government, the British empire interposed her arbitration, ascertained on the part of the Peshwa to what extent of service he was entitled from the Jaghiredars, and, on the part of the latter, engaged to guarantee their possessions, and protect them from the oppressions of the Peshwa's government. General Wellesley (now duke of Wellington) expressed his disapprobation of the projects of vengeance which the above sovereign had formed against the Putwurden family, and others of the Mahratta state in immediate subjection to Poonah; and in his march southwards in 1804, entered into negociations with the chiefs, adjusted the dissensions of the sovereign, and by the able co-operation of Col. Close and Mr. Strachey succeeded in what the home government contemplated, the final settlement of these complicated claims. That it was effected without bloodshed, is to the honor of British prudence and benevolence. MSS. Ferishta, Moor, Wilks, Scott, &c.

The territorial divisions of the province are as follows:—1. The Cóncan; 2. Cólá-púr; 3. Murtezá-ábád; 4. Ased-nagar; 5. District of Bijá púr; 6. Sácar; 7. Rái-chúr; 8. Mudgal; 9. Gajindra-gar'h; 10. Anágúndí; 11. Baucá-púr; 12. Gandac; 13. Núrgul; 14. Azím-nagar; 15. Rái-bágh.

1. The first of these divisions, Cóncan, Cancana, or Cócan, includes a portion of territory 220 miles in length, and thirty-five in breadth, occupying the whole sea coast of the province. It is

bounded on the north by the river Sáwatrì, which separates it from Calyánì, on the west by the Indian Ocean, on the south by Canara, and on the east by the G'háts or Ghauts. Formed by the gradual declivity of the mountains towards the sea, it presents a very unequal surface, intersected by numerous streams and torrents, together with a coast diversified with bays and inlets, although without deep and spacious harbours. The soil below the Ghauts is fertile, producing grain, hemp, cocoa-nuts, &c. The trees planted near the coast are, however, more vigorous and fertile than those cultivated higher up the country, which is commonly attributed to the sea air.

The language of the province is peculiar, possessing a great resemblance to the Sanscrit, from which some imagine it is derived. It is chiefly cultivated by the Brahmans, a peculiar race, not acknowledged by their brethren in the rest of India.

The principal divisions of the province are Concan, B'honsala, and Goa. The former includes Fort Victoria, a fortress at the entrance of the Bancút river. This division, comprehending nine villages, was taken by the British forces in 1756. So great is the advantage of living under the British government, that in 1812 the population had nearly doubled within the last ten years. B'honsala, the second division of the Concan, is a beautiful district formed by a gentle slope of hills descending from the western Ghauts to the sea, and watered by numerous rivers and mountain torrents. Like the former, it has several strong posts or rocky heights, difficult of access.

Though thinly peopled, the soil is extremely fertile, producing cocoa, betel nuts, ginger, sugar, cardamoms, pepper, and other tropical vegetables in great abundance. Iron is also found in the mountains, though wrought in a very clumsy manner by the natives. Goa, now in possession of the Portuguese, forms the southern division of the Concan. Its capital, bearing the same name, although dignified by many noble churches and public buildings, is nearly deserted from the unhealthiness of its climate and the terrors of the Inquisition. So great is the fecundity of the Roman church in this settlement, that in the year 1808 were found no fewer than 2000 ecclesiastics, although the whole extent of the territory does not exceed 400 square miles. The trade has very much declined, and the wretchedness of the country presents a very striking contrast with the English settlements in its vicinity, where every luxury is to be found. It had formerly a considerable manufacture of arack, a spirituous liquor made from toddy, or tári, extracted from the trunks of palm trees; but this is now superseded by a similar spirit at Batavia, of which rice and sugar are the principal ingredients. The dialect that is used here is a barbarous mixture of the Portuguese, Canara, and Mahratta languages. This place has been rendered interesting to the English reader by the visit which Dr. Buchanan paid to it, a full account of which is inserted in his Christian Researches.

2. Cólá-pár, or Cola-poor, according to the former division of the province, was in the Sercar of Ráïbágh, and subsequently formed a small independent state, composed of several districts above and below the mountains, but so intermingled with the neighbouring states as not to be easily discriminated.

3. Mortezabad, a contraction of Morteza-abad, is a small hilly division of the province, at a much greater elevation above the sea than the Cóncan, and is traversed by the Krishna, which rises at Mahábaliser, within the same division of Bijápúr. Among the most remarkable places of this province is the hill-fort of Satarah, a strong-hold of no small celebrity in the Mahratta annals, standing in lat. 17° 42′ N., and long. 74° 12 E., on the pinnacle of a lofty hill, and accessible only by a narrow winding path, which admits no more than one person at a time. Its name, which signifies 'seventeen,' answers to the reputed number of its towers. A wall of solid rock encloses it on all sides to the height of thirty or forty feet. Similar sites are found in the surrounding country, and are occupied by fortresses, which, to a native army, must be nearly impregnable. Kelingah is considered as almost capable of baffling European skill if resolutely defended.

4. Ased-nagar (the city of Lions) is another division of this province. Its chief town is Pundar-púr, a large well-built handsome town, and, what is more extraordinary in an Indian city, has several broad well-paved streets. The markets are supplied with native productions and English manufactures. The banks of the river are lined with stone walls, and handsome flights of steps lead down to the water. The soil around is fertile, but little cultivated; the Brahmins considering it too sacred to be used for the unholy purposes of producing fruit for mortals.

5. Bejapoor, or Vijayapura, the Impregnable, The chief city, of the same name as, and formerly the capital of, the province, has, by European travellers of the last three centuries been denominated Viziapoor. The wall of the city was twenty feet thick, surrounded by a ditch of vast dimensions, excavated out of the solid rock, from the berme of which the curtain rises nearly forty feet, composed of huge stones strongly cemented, and frequently adorned with sculptural representations of lions, tigers, &c. The towers which flank the wall are numerous and of vast size, occurring at intervals of 100 yards. The fort is one of the largest in the world, and, measured by the counterscarp of the surrounding ditch, is no less than eight miles in circumference, and adorned with a spacious courtway from 150 to 200 yards broad. Within the citadel were the king's palace, the houses of the nobility, together with several large magazines; and without the walls were large suburbs, adorned with noble palaces.

The rock on which the city stood furnished abundance of stone for public and private buildings, and the style of their architecture unites elegance with solidity. The city is well watered and the soil rich: large sums of money, with other valuable articles, are also found among its ruins. It is said, in its most flourishing state, to have contained 984,000 inhabited houses and 1600 mosques.

Several enormous pieces of cannon, to the number of twelve, are to be seen here, corresponding with the magnitude of the fort, of which the three largest are of the following dimensions:

1. A Malabar gun.

	Feet.	Inches.
Diameter at the breech	4	5
Length from breech to muzzle . .	21	5
Circumference of the trunnions .	4	7
Diameter at the muzzle	4	3
Ditto of the bore	1	9

2. A brass gun cast by Aurengzebe to commemorate the conquest of Bejapoor.

	Feet.	Inches.
Diameter at the breech	4	10½
Ditto at the muzzle	4	8
Ditto of the bore	2	4
Length	14	1
Circumference in the middle . . .	13	7

3. The gun called High-flyer.

	Feet.	Inches.
Length	30	3½
Circumference at the breach . . .	9	2
Circumference over the smallest part of the moulding	6	0
Diameter of the bore	1	1

The brass gun is fixed on its centre on an immense iron, fastened in the ground, and grasping its trunnions in the manner of a swivel, its breech resting on a block of wood supported by a thick wall, so that it cannot recoil. For the calibre of this gun an iron ball weighing 2646 pounds would be required. The two other guns are constructed of bars of iron hooped round, not upon carriages, but lying on blocks of wood.

The other provinces above enumerated, as belonging to the territory of Barjapoor are of minor importance, and capable of affording but little interest.

BAR-JESUS, or ELYMAS, a Jew, who pretended to be a magician; and endeavouring to obstruct Paul and Barnabas, was miraculously struck blind, Acts xiii. 8.—12.

BARILHA, or BARILLA, in botany, a plant cultivated in Spain for its ashes, from which the purest kinds of mineral alkali are obtained. There are four plants, which in the early part of their growth, bear so strong a resemblance to each other, that they would deceive any but the farmer or critical botanist. These four are, barilla gazul, or as some call it, algazul, soza, and salicornia, or salicor. They are all burnt to ashes, but applied to different uses, being possessed of different qualities. Some of the farmers mix more or less of the three last with the first; and it requires a complete knowledge of the color, taste, and smell of the ashes to be able to detect their knavery. Barilla is sown afresh every year. Its greatest height above ground is four inches: each root pushes out a vast number of little stalks, which again are subdivided into smaller sprigs resembling samphire; and altogether form a large spreading bush. The color is bright green; as the plant advances towards maturity, this color gradually changes to a dull green tinged with brown. Gazul bears the greatest affinity to barilla, both in quality and appearance. the principal difference consists in its growing on a still drier salter earth, consequently it is impregnated with a stronger salt. It does not rise above two inches out of the ground, spreading out into little tufts. Its sprigs are much flatter and more pulpy than those of barilla, and are still more like samphire. It is sown but once in three, four, or five years, according to the nature of the soil. Soza, when of the same size, has the same appearance as gazul, but in time grows much larger, as its natural soil is a strong salt marsh, where it is to be found in large tufts of sprigs, treble the size of barilla, and of a bright green color, which it retains to the last. Salicor has a stalk of a deep green color, inclining to red, which last becomes by degrees the color of the whole plant. From the beginning it grows upright, and much resembles a bush of young rosemary. Its natural soil is on the declivities of hills near the salt marshes, or on the edges of the small drains or channels cut by the husbandmen for the purpose of watering the fields; before it has acquired its full growth, it is very like the barilla of those seasons in which the ground has been dunged before sowing. In those years of manuring, barilla, contrary to its usual nature, comes up with a tinge of red, and when burnt falls far short of its wonted goodness, being bitter, more impregnated with salt than it should be, and raising a blister if applied for a few minutes to the tongue. Barilla contains less salt than the others; when burnt, it runs into a mass resembling a spongy stone, with a faint cast of blue. Gazul, after burning, comes as near barilla in its outward appearance as it does while growing in its vegetable form; but, if broken, the inside is of a deeper and more glossy blue. Soza and salicor are darker, and almost black within, of a heavier consistence, with very little or no sign of sponginess. All these ashes contain a strong alkali; but barilla the best and purest, though not in the greatest quantity. Upon this principle, it is fittest for making glass and bleaching linen; the others are used in making soap. Each of them would whiten linen; but all except barilla would burn it. A good crop of barilla impoverishes the land to such a degree, that it cannot bear good barilla a second time, being quite exhausted. For this reason the richer farmers lay manure on the ground, and let it lie fallow for a season, at the end of which it is sown afresh without any danger, as the weeds that have sprung up in the year of rest have carried off all the pernicious effects of the dung. A proper succession of crops is thus secured by manuring and fallowing the different parts of the farm, each in their turn. The poorer cultivators cannot pursue the same method for want of capital; and are therefore under the necessity of sowing their lands immediately after manuring, which yields them a profit just sufficient to afford a present scanty subsistence, though the quality and price of their barilla be but trifling.

BARILLA, BARILLIA, or BARIGLIA, in the glass trade, is a sort of pot ashes imported from Spain, inferior in goodness to those of the Levant, called polverine when loose, small, and in powder, and rochetta when in hard rocky lumps The frit made of these becomes fine and clear crystal glass, especially that from the rochetar, or

the polverine in lumps; but the barilla of Spain, though it be usually fatter, yet makes not a glass so white, but usually inclining to a bluish color. The method used in making barilla is the same as that followed in Britain in burning kelp. The plant as soon as ripe is plucked up and laid in heaps, and then set on fire. The salt juices run out below into a hole made in the ground, where they run into a vitrified lump, which is left about a fortnight to cool. An acre may give about a ton.

BARILLARIUS, an ancient officer in monasteries and great households, who had the care of the casks and vessels of wine, &c.

BARJOLS, a small populous town of France, in the department of the Var, (a part of the ci-devant province of Provence,) nineteen miles from Riez.

BAR-JONAS, a Syriac designation of St. Peter, importing that he was the son of Jonas.

BARITONO, in music, denotes a voice of low pitch, between a tenor and a base.

BARIUM, in ancient geography, a town of Apulia, on the Adriatic; so called from the founders, who, being expelled from the island Bara, built this town.

BARIUM, the metallic basis of the earth barytes, and so called by its discoverer, Sir H. Davy. Take pure barytes, make it into a paste with water, and put this on a plate of platinum. Make a cavity in the middle of the barytes, into which a globule of mercury is to be placed. Touch the globule with the negative wire, and the platinum with the positive wire of a voltaic battery of about 100 pairs of plates in good action. In a short time an amalgam will be formed, consisting of mercury and barium. This amalgam must be introduced into a little bent tube, made of glass free from lead, sealed at one end, which being filled with the vapor of naphtha, is then to be hermetically sealed at the other end. Heat must be applied to the recurved end of the tube, where the amalgam lies. The mercury will distil over, while the barium will remain.

'This metal,' says Dr. Ure, 'is of a dark gray color, with a lustre inferior to that of cast-iron. It is fusible at a red heat. Its density is superior to that of sulphuric acid; for, though surrounded with globules of gas, it sinks immediately in that liquid. When exposed to air it instantly becomes covered with a crust of barytes; and when gently heated in air, burns with a deep red light. It effervesces violently in water, converting this liquid into a solution of barytes.' Sir H. Davy thinks it probable that barium may be procured by chemical as well as electrical decomposition. When chloride of barium, or even the dry earth, ignited to whiteness, is exposed to the vapor of potassium, a dark gray substance is found diffused through the barytes or the chloride, not volatile, which effervesces copiously in water, and possesses a metallic appearance, which disappears in the air. The potassium, by being thus transmitted, is converted into potash. From indirect experiments Sir H. Davy was inclined to consider barytes as composed of 89·7 barium + 10·3 oxygen = 100. This would make the prime equivalent of barium 8·7, and that of barytes 9·7, compared to that of oxygen 1·0; a determination nearly exact. Dr. Clarke of Cambridge, by exposing dry nitrate of barytes on charcoal, to the intense heat of the condensed hydroxygen flame, observed metallic-looking globules in the midst of the boiling fluid, and the charcoal was found to be studded over with innumerable globules of the most brilliant lustre and whiteness. On letting these globules fall from the charcoal into water, hydrogen was evolved in a continued stream. When the globules are plunged in naphtha, they retain their brilliancy but a few days. Barium combines with oxygen in two proportions, forming, 1st. barytes, and 2d. the deutoxide of barium. See BARYTES.

BAR'K, *v.* & *n.*
BAR'KBARED,
BAR'KY,
BAR'KER.

These have the same origin with the words barge, &c. The root from which they are derived conveys the idea of security and defence. See BAR. The defence of a tree is its *bark*. It is that which protects it from the weather. Hence the application of the term to the rind or outside covering of the trees. To *bark*, is used in opposite senses. It signifies either to strip off, or to cover, as with bark.

And as in winter leaves ben biraft,
Ech after other til trees be bare,
So that there nis but *barke* and brannch ylaft.
Chaucer. Troilus and Creseide.

In a walnote, without ys a byter *barke*,
And often þat biter *barke*, be þe shall aweye,
Ys a curnal of comfort. *Piers Ploughman.*

Thy palate then did deign
The roughest berry on the rudest hedge;
Yea, like the stag, when snow the pasture sheets,
The *barks* of trees, thou brow'sd.
Shakspeare. Antony and Cleopatra.

So doth the woodbine the sweet honeysuckle,
Gently entwist; the female ivy so
Enrings the *barky* fingers of the elm.
Id. Midsummer's Night Dream.

What craftsman art thou, said the king,
I pray thee tell me trowe,
I am a *barker*, sir, by my trade;
Now tell me what art thou?
Edward IV. and Tanner of Tamworth, in Percy.

The cause is, for that trees last according to the strength of their sap and juice; being well munited by their *bark* against the injuries of the air.
Bacon's Natural History.

Perhaps some cold bank is her bolster now,
Or 'gainst the *bark* of some broad elm,
Leans her unpillow'd head fraught with sad fears.
Milton.

The slant lightning, whose thwart flame driv'n down,
Kindles the gummy *bark* of fir or pine,
And sends a comfortable heat from far,
Which might supply the sun. *Id.*

I'll carve thy name on *barks* of trees,
With true love knots and flourishes,
That shall infuse eternal spring
And everlasting flourishing. *Hudibras.*

For oft engendered by the hazy north,
Myriads on myriads, insect armies warp
Keen in the poison'd breeze, and wasteful eat
Through buds and *bark* into the blackened core,
Their eager way. *Thomson.*

Wand'ring in the dark,
Physicians for the tree have found the *bark*.
Dryden.

The severest penalties ought to be put upon *barking* any tree that is not felled. *Temple.*

These trees, after they are *barked* and cut into shape, are tumbled down from the mountains into the stream. *Addison.*

Excorticated and *bark-bared* trees may be preserved by nourishing up a shoot from the foot, or below the stripped place, cutting the body of the tree sloping off a little above the shoot, and it will heal, and be covered with *bark*. *Mortimer.*

In the kingdom of Monomotapa, they have a method of deciding lawsuits equally whimsical and uncertain. The witness for the plaintiff chews the *bark* of a tree, endued with an emetic quality; which, being sufficiently masticated, is then infused in water, which is given the defendant to drink.

Blackstone's Commentaries.

BAR'K, *v.* & *n.* } Derived from the same
BAR'KER, } word as the preceding. Its primary sense is to guard and defend. Thus the *bark* of a dog is his own defence and ours. It apprises of danger, expresses anger, and excites fear. To *bark*, therefore, is to make a noise, either to annoy others, or to protect ourselves.

Vile is the vengeance on the ashes cold,
And envy base, to *bark* at sleeping fame.
Spenser's Faerie Queene.

You dare patronage
The envious *barking* of your saucy tongue
Against my lord. *Shakspeare.*

Sent before my time
Into this breathing world, scarce half made up,
And that so lamely and unfashionably,
That dogs *bark* at me. *Id. Richard III.*

Why do your dogs *bark* so? be there bears i' th' town? *Id. Merry Wives of Windsor.*

What hath he done more than a base cur? *barked* and made a noise? had a fool or two to spit in his mouth? But they are rather enemies of my fame than me, these *barkers*. *Ben Jonson.*

Her clacking mill, driv'n by her flowing gall,
Could never stand, but chide, rail, *bark*, and bawl,
Her shield no word could find, her tongue engross'd them all. *Fletcher's Purple Island.*

And when more age and strength more fierceness lent,
She taught him in a dark and desart wood,
With force and guile poor passengers to slay,
And on their flesh his *barking* stomach stay,
And with their wretched blood his fiery thirst allay.
Id.

I have oft heard
My mother, Circe, with the graces three,
Amidst the flow'ry kirtled Naiades,
Culling their potent herbs and baleful drugs,
Who as they sung would take the prison'd soul,
And lap it in Elysium; Scylla wept,
And chid her *barking* waves into attention,
And fell Charybdis murmur'd soft applause.
Milton.

BAR'K, } The *barks* are all of a family;
BAR'KMEN, } for their great progenitor, see to BAR. A *bark*, says Tooke, is a stout vessel, in the same sense that *barge* is a strong boat, implying safety and defence. The word, however, does not always convey this its primary meaning. It is frequently applied indiscriminately to small ships employed either for commerce or pleasure.

Like as a ship with dreadful storme long tost,
Having spent all her mastes and her ground-hold,
Now far from harbour, likely to be lost,
At last some fisher *barke* doth neare behold,
That giveth comfort to her courage cold. *Spenser.*

And I, in such a desperate bay of death,
Like a poor *bark*, of sails and tackling reft,
Rush all to pieces on thy rocky bosom.
Shakspeare.

The duke of Parma must have flown, if he would have come into England: for he could neither get *bark* nor mariner to put to sea.

Bacon, on the War with Spain.

O my soul's joy:
If after every tempest come such calms,
May the winds blow till they have waken'd death!
And let the labouring *bark* climb hills of seas,
Olympus-high; and duck again as low
As hell's from heaven! If it were now to die,
'Twere now to be most happy; for, I fear,
My soul hath her content so absolute,
That not another comfort like to this
Succeeds in unknown fate. *Id.*

Whilst I, in vale of tears, at anchor ride
Where winds of earthly thoughts my sails misguide,
Harbour my fleshly *bark* safe in thy wounded side.
Fletcher's Purple Island.

Some have the boots of their own life to guide,
Some of whole families doe row the *barge*,
Some govern petty townships too, beside
(To those compar'd which of small *barkes* have charge)
Some others rule great provinces, and they
Resemble captains of huge Argosies;
But when of kingdomes any gayne the sway,
To generals of fleets we liken these. *George Wither.*

When they come near the shore the *barkemen* leap out of the *barke* into the sea to keep the *barke* right, that she cast not thwart the shore.

Hackluyt. Voyages, &c.

It was that fatal and perfidious *bark*
Built in th' eclipse, and rigg'd with curses dark,
That sunk so low that sacred head of thine. *Milton.*

Who to a woman trusts his peace of mind,
Trusts a frail *bark* with a tempestuous wind.
Granville.

Like a flag floating when the *bark's* ingulph'd,
It floats a moment, and is seen no more;
One Cæsar lives, a thousand are forgot. *Young.*

Ill fares the *bark* with trembling wretches charg'd
That toss'd amid the floating fragments, moors
Beneath the shelter of an icy isle
While night o'erwhelms the sea, and horror looks
More horrible. *Thomson.*

My sole resourses in the path I trod
Were these—my *bark*—my sword—my love—my God!
The last I left in youth—he leaves me now—
And man but works his will to lay me low.
Byron's Corsair.

BARK, in the anatomy of plants, is that exterior coat of trees, corresponding to the skin of an animal. For its organisation, &c. see BOTANY. As animals are furnished with a panniculus adiposus, usually replete with fat, which invests and covers all the fleshy parts, and screens them from external cold; plants are encompassed with a bark replete with fatty juices, by means whereof the cold is kept out, and in winter the spiculæ of ice prevented from fixing and freezing the juices in the vessels: whence it is that some sort of trees remain ever-green all the year round, their barks containing more oil than can be spent and exhaled by the sun, &c. The bark has its peculiar diseases, and is infested with insects peculiar to it. It appears from the experiments of Buffon, that trees stripped of their bark the whole

length of their stems die in about three or four years. But it is very remarkable, that trees thus stripped in the time of the sap, and suffered to die, afford timber heavier, more uniformly dense, stronger, and fitter for service, than if the trees had been cut down in their healthy state. Something of this nature was observed by Vitruvius and Evelyn. The ancients wrote their books on bark, especially of the ash and lime tree, not on the exterior, but on the inner and finer bark called philyra; and this custom is yet frequent in the east. Many kinds of bark are used in the arts. Some in agriculture and in tanning leather, as the oak bark; some in physic, as the Jesuit's &c. others in dyeing, as the bark of alder and walnut trees; others in spicery, as cinnamon, mace, cassia lignea, &c.; and others for divers uses, as the bark of the cork tree, &c. In the East Indies they prepare the bark of a certain tree so as to spin like hemp. After it has been beaten and steeped in water, they extract long threads from it, which are something between silk and common thread; being neither so soft nor so glossy as silk, nor so rough and hard as hemp. They mix silk with it in some stuffs, and these are called millaes, and cherquemolles. The Japanese make paper of the bark of a species of mulberry tree. See Morus. In the island of Otaheite, the natives make their cloth, which is of three kinds, of the bark of different trees; the paper-mulberry above mentioned, the bread-fruit tree, and the cocoa-tree. That made of the mulberry is the finest and whitest, and worn chiefly by the principal people. Of the bark, too, of a tree which they call poerou, the hibiscus tiliaceus of Linnæus, they manufacture excellent matting; a coarse sort which serves them to sleep upon, and a finer to wear in wet weather. Of the same bark they also make ropes and lines, from the thickness of an inch to the size of a small packthread.

Bark, Jesuit's, or Bark by way of eminence, quinquina, or cinchona. See Cinchona.

Bark, Indian, Thuris cortex, a medicinal bark, brought from the East, rolled up like cinnamon; of a rusty color, a warm aromatic bitter taste, and pleasant smell; sometimes used in fumigation against fits of the mother.

Bark, in navigation, is a general name given to small ships; it is however sometimes peculiarly appropriated to those which carry three mariners, who are trained up in the coal trade. Some apply this distinction to a broad sterned ship, which carries no ornamental figure on the stern or prow.

Bark, Long, is a small vessel without deck, and longer and lower than the common barks, being sharp before, and commonly going both with sails and oars. It is built after the manner of a sloop, and in many places is called a double sloop.

Bark, Water, a little vessel used in Holland for the carriage of fresh water to places where it is wanting, as well as for the fetching sea-water to make salt of. Water barks have a deck, and are filled with water up to the deck.

Bark Bed, in gardening, is that sort of hot-bed which is either wholly or principally constituted of tanner's bark. This bed, from its preserving the most uniform and regular degrees of heat, is found by much the most useful in the propagation and culture of all kinds of tender exotic plants that are brought from warm climates, and which stand in need of the continued assistance of artificial heat in this part of the world. Beds of this nature, with a little trouble in the management of them, are found sometimes to support a pretty uniform and regular temperature for a considerable length of time. They are generally employed in hot-houses, being formed in pits or cavities constructed for the purpose, frequently the whole length of the house, six or seven feet in width, and three in depth, being enclosed by means of brick-work. See Bark Pit.

In these beds the pots of tender exotics are plunged and supported; while they at the same time afford the houses or stoves degrees of heat that may be proper for the growth and support of other plants that do not require to be plunged into the beds. Bark hot-beds are likewise occasionally formed in pits, constructed for them in the open ground, separately and detached from the hot-house. These are walled round with bricks, chiefly above the surface of the ground, having a frame or coping of wood upon the top, on which glass lights are fixed so as to slide with facility. See Bark Pit.

Beds formed of bark are also employed with success in various sorts of early productions, as early strawberries, melons, peas, French beans, &c., and, by the regular and moderate heat they afford, they mostly bring them forward in the greatest perfection. They are likewise made use of in forcing different sorts of curious flowers, of the bulbous, tuberous, and fibrous-rooted kinds, into early bloom—as hyacinths, dwarf-tulips, narcissus, jonquils, anemonies, ranunculuses, pinks, &c. also many flowering plants of the small shrubby kind, as roses, hypericums, &c. Bark beds are also employed with great advantage in forcing frames for the purpose of producing early fruit of the apricot, peach, and grape kinds. See Forcing Frames and Hot-Walls.

Hot-beds constituted of bark, from the slow and regular manner in which the heat is in common evolved, are not so liable, as those of dung, to injure the plants by their steam; they are therefore to be preferred for all the more important purposes of forcing, where the material can be obtained. The heat of them may be perpetuated for a great length of time, by having recourse occasionally to the practice of forking or turning them over, adding in such operations about a third part of new tan or bark. The beds are, however, to be wholly, or in great part, renewed every autumn and spring.

Bark Mill, a mill constructed for the purpose of grinding and preparing bark till it is fit for the use of the tanner. Bark mills, like most other mills, are worked sometimes by means of horses, at others by water, at others by wind, or by steam. Several of these mills are described in different volumes of the Repertory of Arts and Manufactures, and an ingenious one in Gregory's Mechanics, vol. ii. Mr. Chapman's simple machinery for this purpose (for which he took out a

patent in July 1805) is thus described, as below, in No. 3, of the Retrospect of Arts and Manufactures. It may be worked by horses, or in any of the usual ways. A large horizontal face-wheel gives motion to a horizontal tumbling shaft, which unites with the gudgeon of a large rag-barrel: two other cylinders are posited horizontally with respect to this rag-barrel, one on each side; one of these is a smaller rag-barrel, the other is a spike-roller. A moderate-sized wheel at one end of the larger rag-barrel has its teeth to play into the leaves of a pinion on the end of the spike-roller, thus communicating motion to that roller and to a large fly-wheel turning on the same axis: two or three other smaller wheels and pinions communicate motion from the larger to the smaller barrel, and in such manner that the latter has a considerably less velocity than the former, and turns the contrary way. A horizontal hollow frame contains the barrels and spike-roller, and the bottom plate of this is movable by means of screws, so as to be capable of adjustment, and placed at a suitable distance from the rag-barrel, to act as a grinding-plate. Two screws, whose heads are at one end of this frame, serve to place the smaller rag-barrel at a convenient distance from the larger. This large barrel has about twenty rows of plates with their indentations turning downwards, while the indentations of the smaller barrel project upwards; so that this latter barrel gathers the bark and holds it fast, while the larger one tears it to pieces; and the spike-roller on the other side of this larger barrel keeps it clean. A sloping spout conveys the torn bark from the grinding-plate to an inclining cylinder, posited like the cylinders in dressing machines for flour-mills: the wires of this cylinder are of two different kinds with respect to fineness, the coarsest being lowermost; and beneath it two bins are placed, the one to receive the finer dust, the other the coarser or hand-dust from the cylinder; and next to these stands a basket to receive the torn bark as it passes through the cylinder.

Bark Pit, a pit or cavity of a long, square, or other form, a yard or more in depth, appertaining to a hot-house or stove, &c. and being formed internally, or detached externally, in which to make tan or bark hot-beds, commonly called bark beds. The dimensions are four, five, or six feet in width, or more, having length in proportion to that of the hot-house, &c., and when in detached pits, such as may be required. In both methods they are formed by a low surrounding brick-wall, about a yard in height in the internal pits, and in the external ones three or four feet in front, by four or five in the back wall. These different sorts of pits are indispensably necessary, where bark beds are intended, to make the beds in, as the short loose nature of the tan will not admit of being formed into compact regular beds without the aid of such kinds of enclosed pits to confine it close together within the limits that are requisite in the formation of the beds.

Bark pits are necessary for various purposes, in all hot-houses or stoves, and occasionally in forcing-houses, &c. And detached bark pits, distinct from the hot-house, are likewise very useful in all extensive gardens on many occasions, being of great service in the culture of many sorts of tender exotics, and in raising various kinds under different methods of propagation, as well as for raising and nursing those of similar kinds in their young and tender growth; also occasionally for forcing and raising early productions of several sorts of hardy plants in the greatest perfection.

Hot-houses, or stoves of the common width, have in general only one pit, extending lengthways of them, as described above; but, if they are of considerable extent in length, the pit is sometimes divided in the middle by an intervening passage, to render it more convenient in performing the necessary culture of the plants. Some hot-houses, however, of very great width, have two internal bark pits ranging parallel lengthways, with an alley or passage extending between them, which renders them more commodious in giving the requisite culture to the plants that are plunged in the beds, than if the whole was in one extremely wide pit, in which it would often be very inconvenient to come at the plants placed towards the middle of them; so that two parallel pits, four or five feet wide each, become more eligible than one of eight or ten feet, and, by having an intervening passage, give a larger scope, and afford a better current of air, for the growth of the plants in the beds, as well as admit of viewing them to greater advantage and effect.

Detached bark pits should always be erected in warm dry situations, in a southerly aspect, and be constantly ranged lengthways in the direction of east and west, or nearly so, in order to have the whole front incline fully to the south sun, in a sloping manner, on which to place the glasses in the same position, being generally stationed either contiguous to the hot-house or stove, but at a proper distance in front of it, as the situation and convenience of the place may admit; or they may be erected at one or at both ends, extending in a line with it but separated by a passage between them. But detached bark pits are sometimes formed with ridged tops, like the roofs of houses, the glasses sloping to both sides, being ranged lengthways north and south, in order to have the benefit of the sun equally on both sides, and used for the same purposes as the others; though the common south-fronting pits, extending east and west, are more generally adopted, being less expensive in glass-work, &c. and, in general, more convenient for different purposes of the forcing kind. They should be constructed with walls of brick-work, forming the upright sides and ends nine inches thick; and where fire-flues are intended, the back wall should be of a proper thickness from the bottom to admit of having flues in the upper parts, a fire-place being contrived externally at the bottom at one end; or, in considerably extended pits a double fire-place may be formed in the middle, behind, or one at each end, either endways or in the back part, as may be thought the most convenient. Some detached pits are formed of wood-work only, by means of post and planking, serving for particular occasions, where no fire heat is required, as flues for that

purpose cannot be admitted in such kinds of pits; where additional heat is occasionally necessary in such pits, it is effected by applying a strong lining of hot dung to the outsides; by which a good constant heat may be supported. In these bark pits sometimes the younger pine-apple plants are deposited and nursed for the first year; they are likewise occasionally used for the purposes of propagating, raising, and nursing tender plants in spring and summer, &c. also for forcing early esculent crops, flowers, &c.

The principal detached bark pits should, however, be formed with brick-work walls; as being the most effectual for general use, and of the greatest duration.

BARKARY, a tan-house, or place to keep bark in, for tanners.

BARK-BINDING, a distemper incident to trees; cured by slitting the bark, or cutting along the grain.

BARK-GALLING, is when the trees are galled with thorns, &c. It is cured by binding clay on the galled places.

BARKHAM (Dr. John), a learned divine and antiquary, born at Exeter about 1572, and educated at Oxford. He possessed successively several preferments, and died at Bocking in Essex, of which he was rector and dean, 1642. He was an accomplished scholar, and an exact historian. He had an excellent collection of coins and medals, which he gave to archbishop Laud, and which Laud afterwards left to the university of Oxford. Speed acknowledges the assistance he had from Barkham, whom he styles 'a gentleman, composed of learning, virtue, and courtesy.' The 'Annals' of John and Henry II. are reckoned to be chiefly of his writing. He had also the principal hand in 'Guillim's Display of Heraldry,' 1610, fol.

Barkam-sted. See Berkhamstead.

BARKING of Trees, the peeling off the rind or bark. This must be done, in our climate, in the month of May, because at that time the sap separates the bark from the wood. It would be very difficult to perform it at any other time of the year, unless the season was extremely wet and rainy; for heat and dryness are a very great hindrance to it.

Barking, a town of Essex, on the river Roding, near the Thames, chiefly inhabited by fishermen. It once had a large monastery. The Danes destroyed the town in 870, but it was rebuilt soon after the coronation of William the Conqueror. The soil of the vicinity is remarkably rich, but the air is unhealthy. Goods are brought up from the Thames in vessels to its quay. It is seven miles from London, has a fair October 22d, and a market on Saturday.

BARKSDALE (Clement), a learned writer, born at Winchcombe, in Gloucestershire, in 1609. He received the first part of his education at Abingdon-school, and afterwards went to Oxford. He became master of the grammar-school at Hereford; but when the rebels took that city, he removed to Hawling, in Gloucestershire, and opened a school there. At the Restoration he was presented to the living of Naunton, and died there in 1687. His writings are, 1. Monumenta Literaria: sive obitus Elogia Ductorum virorum, ex Historiis J. A. Thuani, 4to. 2. Nympha Libethtis, or the Cotswold Muse, 8vo. 1651. 3. Life of Hugo Grotius, 12mo. 1652. 4. Memorials of Worthy Persons, 12mo. 1661; and other tracts. He also published several sermons.

BARKWAY, a town of Hertfordshire, on the great road from London to York; three miles from Royston, eighteen from Cambridge, and thirty-five from London. It has a fair July 20, and a market on Friday.

BARLAAM, a learned monk of the fourteenth century, was a native of Calabria. Having gone to Constantinople to study the Greek language, he gained the favor of the emperor Andronicus, of whom he received the abbey of St. Saviour, and was employed to negociate a reunion between the two churches. The emperor also employed him to solicit the assistance of the Christian princes against the infidels; and on his return he occupied his pen in writing against the Latins. He, however, quickly changed his principles on being made bishop of Gerace, in Italy, and commenced an opponent of the Greeks. He died in 1348. His letters were printed in Ingolstadt in 1604. He was a great opponent of Greg. Palama and the Hesychastæ.

Barlaamites, in church history, the followers of Barlaam.

BARLÆUS (Gaspar), professor of philosophy at Amsterdam, and one of the best Latin poets of the seventeenth century. He defended Arminius; and showed his abilities as an historian by his relation of what passed in Brasil, during the government of prince Maurice, of Nassau, published in 1647. He died in 1648.

Barlæus (Lambert), professor of Greek at Leyden. In conjunction with Rivius, he translated the confession of the reformed churches into Greek, and published the Timon of Lucian, with notes; also, Annotations on Hesiod's Theogony. He died in 1655.

BARLAND (Adrian), a learned Dutch critic, was professor of eloquence at Louvain. He published Notes on Terence, Virgil, Pliny the younger, and Menander; An Abridgement of Universal History; The Chronicles of the Dukes of Brabant; De Literatis urbis Romæ Principibus, &c. He died at Louvain in 1542.

BARLERIA, Snap-Dragon, in botany, a genus of the angiospermia order, and didynamia class of plants, ranking in the natural method under the fortieth order personatæ: cal. quadripartite, two of the stamina much less than the rest; the capsule quadrangular, bilocular, bivalved, elastic, and without claws; and the seeds are two. There are ten species; all natives of the warm parts of America, and therefore required to be kept in a stove, and treated like other tender exotics. They possess no great beauty nor any remarkable property.

BARLETTA, a sea-port town of Italy, in Naples, in the Terra di Bari, with a bishop's see. It is situated on the Gulf of Venice, thirty miles south-east of Manfredonia.

Barletta (Gabriel), a Dominican of singular fame in the fifteenth century. He was born at Barletta, in the kingdom of Naples, about 1400. 'His sermons,' says Dr. Watkins, 'exhibit such

a mixture of religious and comic expressions, sublime and vulgar ideas, the serious and the ridiculous, and, what is more remarkable, the whole written in such a barbarous language, compounded of Greek, Latin, and Italian, as to have rendered them one of the most extraordinary productions of literature. Such, however, was his fame among his contemporaries, as to have occasioned this proverb: 'nescit predicare qui nescit Barlettare.' From this singular and rare merit, his sermons were eagerly sought after and read, and they quickly passed through more than twenty editions. The best is that of Venice, in 1577, two vols. 8vo.

BA'RLEY, *n. s.* derived by Junius from בר hordeum.; grain of which malt is made. It hath a thick spike; the calyx, husk, awn, and flower, are like those of wheat or rye, but the awns are rough; the seed is swelling in the middle, and, for the most part, ends in a sharp point, to which the husks are closely united. The species are, 1. Common long-eared barley. 2. Winter or square barley, by some called *big*. 3. Sprat barley, or battledoor barley. All these sorts of barley are sown in the spring of the year, in a dry time. In some very dry light land, the barley is sown early in March; but in strong clayey soils it is not sown till April. The square barley, or *big*, is chiefly cultivated in the north of England and in Scotland; and is hardier than the other sorts.—*Miller*. Barley is emollient, moistening, and expectorating; barley was chosen by Hippocrates as a proper food in inflammatory distempers.—*Arbuthnot on Aliments*.

BA'RLEYBRAKE, *n. s.* a kind of rural play.

By neighbours prais'd she went abroad thereby,
At *barleybrake* her sweet swift feet to try. *Sidney.*

BA'RLEY-BROTH, *n. s.* from barley and broth; a low word sometimes used for strong beer.

Can sodden water
A drench for surreyn'd jades, their *barley broth*,
Decoct their cold blood to such valiant heat?
Shakspeare.

BARLEY-CORN, *n. s.* from barley and corn; a grain of barley; the beginning of our measure of length; the third part of an inch.

A long, long journey, choak'd with brakes and thorns,
Ill measur'd by ten thousand *barley corns*. *Tickell*

BARLEY-MOW, *n. s.* from barley and mow; the place where reaped barley is stowed up.

Whenever by yon *barley mow* I pass,
Before my eyes will trip the tidy lass. *Gay.*

BARLEY BIRD, in zoology, a name given in Sussex to the fringilla spinus, or siskin, on account of its visiting them in barley time.

BARLEY, in botany. See HORDEUM and AGRICULTURE. The principal use of barley in England is for making beer; in order to which it is first malted. See BREWING. The Spaniards, among whom malt liquors are little known, feed their horses with barley as we do with oats. In this country barley is a frequent ingredient in broths.

BARLEY, FRENCH, and BARLEY, PEARL, barley freed of the husk by a mill; the distinction between the two being, that the pearl barley is reduced to the size of small shot, all but the very heart of the grain being ground away.

BARLEY-WATER is a decoction of either of these, reputed soft and lubricating, of frequent use in physic. This well known decoction is a very useful drink in many disorders; and is recommended, with nitre, by some authors of reputation, in slow fevers.

BARLEY-BROTH. See BARLEY.

BARLEY-CORN, is used to denote a long measure, containing in length one-third of an inch, and in breadth one-eighth. The French carpenters also use barley-corn, grain d'orge, as equivalent to a line, or one-twelfth of an inch.

BARLEY-CORN, grain d'orge Fr.; is also used in building for a little cavity between the moulding of joiners' work, serving to separate or keep them asunder; thus called, because made with a kind of plane of the same name.

BARLOW (Francis), an English painter, born in Lincolnshire. On his coming to London, he was placed with a limner; but his genius led him chiefly to drawing of birds, fish, and other animals. There are six books of animals from his drawings, and his etchings are numerous; his illustrations of Æsop is his greatest work. He died in 1702. There is something pleasing in his composition and manner, though neither is excellent. His birds, in general, are better than his beasts.

BARLOW (Thomas), born in 1607, was appointed fellow of Queen's college, Oxford, in 1633, and two years after was chosen reader of metaphysics to the university. He was keeper of the Bodleian, and in 1657 was chosen provost of Queen's college. After the Restoration, he was nominated one of the commissioners for restoring the members expelled in 1648. He wrote at this time The Case of Toleration in Matters of Religion. In 1675 he was made bishop of Lincoln. After the popish plot, he published several tracts against the Roman Catholics; in which he shows an uncommon extent of learning and polemical skill. When the duke of York, however, was proclaimed king, he took every opportunity of expressing his affection towards him; but after the Revolution, as readily voted that the king had abdicated his kingdom; and was very zealous in excluding those clergymen who refused the oaths. His moderation, to call it by the softest name, was very great; so great, indeed, as often to bring the firmness of his character into question. But casuistry, which was his most distinguished talent, reconciles seeming contradictions. He died at Buckden, in Huntingdonshire, in 1691, aged eighty-five.

BARLOW (Joel), an American poet, the author of the Columbiad, was born at Reading, in the state of Connecticut, in the year 1757. He received his education at Dartmouth College; and in the latter part of the struggle which his country maintained for independence, served in he army. When his services were no longer retuired in the capacity of a soldier, he commenced the task of benefiting his country, and promoting his own fortune as a public writer; and, having engaged in partnership with a bookseller and printer at Hartford, conducted a newspaper there

for two years. His education had been directed to the profession of law, although the troubles of the American union had, for a time, diverted his mind from legal pursuits; and on the restoration of tranquillity, and the establishment of independence, he resumed his original determination. He was accordingly called to the bar in 1785, and practised for some time with success. Two years afterwards he published his Vision of Columbus, a poem in nine books, which embraced almost all the events of the epic, which he subsequently gave the world under the title of the Columbiad. In the same year, or nearly about the same time, he accepted of the situation of agent to the Ohio Land Company. In this capacity he came to England to sell their lands, and to engage settlers to occupy them. The same employment led him to France, where he remained during the era of the French revolution; and as he witnessed in his own country a struggle for liberty and independence, ending in the most brilliant success, so he sympathised, without reserve, in the feelings of the French popular party, and anticipated from their efforts the most glorious results. Neither the precipitate violence with which the demagogues prosecuted their objects of reform, nor the atrocities of a licentious mob, who received the watchword of havoc and bloodshed from the fierce spirits now called into action, nor the acts of tyrannical injustice committed under the sacred name of liberty, could deter this intrepid republican from admiring and applauding the work of revolution. Nor was he satisfied with bestowing on it his own individual tribute of encouragement and approbation. He offered himself as one of the deputies from the London Constitutional Society, who should carry to the hall of the French convention the congratulations of England upon the glorious prospect of a regenerated people, and to unite their wishes with that assembly for the general diffusion over the world, of the freedom that assembly had conferred on their country. About the same time he published three political pamphlets, containing his opinions on passing events, and preaching the doctrine of reform. One of these is entitledt Advice to the privileged Orders, and was a, the time read with great avidity. His political lucubrations, and the part he took in conveying to the national convention of France the address of English subjects, were regarded with a jealous eye by the administration of this country, and rendered it unadvisable in him to return to Britain. He continued therefore at Paris, and was much connected with the leaders of the Gironde party. Washington, being then president of the United States, appointed him, in 1795, envoy to the Barbary powers, and with them, in the following year, he negociated treaties of peace. From the year 1796 till 1804, he principally resided at Paris, kept an elegant house, entertained occasionally the Americans, or the few English who could visit that city, and gained the esteem of the natives by the politeness and urbanity of his manners. He thus had the misfortune to see the tree of liberty, whose roots had been watered with the best blood of France, cut down by the axe of a military despot. He had the misfortune to see those ferocious citizens, who, at first, pretended a desire to recline under its shadow, only maddened with its fruits, and, in the paroxysms of the fury which they inspired, rushing forth to conquer and oppress the nations. In 1804 Mr. Barlow resolved to return to America, and in his way thither visited England. In the metropolis he was well received by many who had experienced his hospitality at Paris, and remained for a few months to enjoy their society. He was cured of his admiration for French liberty, and deplored the establishment of the imperial power; but his preference for a republic seemed to have remained unchanged. After returning to America, he occupied himself with revising, amending, and enlarging his poem on American history, which, upon republication, he entitled the Columbiad. It appeared in 1808, in a splendid volume, printed at Philadelphia, adorned with engravings, and was the most magnificent work that had issued from the American press. But its reception in the literary world was not conformable with the splendor of its appearance. It was read and criticised in this country when it first appeared, but it never had much circulation, and we believe is now almost forgotten. Mr. Barlow's principles and conduct could not fail to render him a favorite with the ruling party in the American states, and as he was, from long residence in Paris, well acquainted with the French character, and the principles of the French government, he was employed by president Maddison, in 1812, in a mission to France. The relations of America with the French empire were then in a very intricate undecided state, but requiring a speedy understanding and prompt adjustment; and as the emperor, in his Russian expedition, had carried the powers of the government along with him, Mr. Barlow set out from Paris to encounter the severities of a Polish winter in obtaining an interview with the Great Napoleon. He was not favored with a sight of the emperor; and though he lived till he returned from Moscow, the swords of the Cossacks had rendered his lustre less dazzling, and a treaty of alliance with him of less importance. He died near Cracow, in Poland, about the beginning of December, 1812.

Barlowe (William), bishop of Chichester, descended of an ancient family in Wales, was born in the county of Essex. In his youth he favored the Reformation; and went to Germany to be instructed by Luther and other preachers of the new doctrine. How long he continued a Protestant is uncertain: but he was a regular canon in the Augustine monastery of St. Osyth, in Essex, and studied at Oxford with the brothers of that order, where he took the degree of D. D. He was then made prior of the convent at Bisham, in Berkshire; and afterwards succeeded to the several priories of Blackmore, Typtree, Lega, Bromhole, and Haverford West. On the dissolution of abbeys, he resigned not only with a good grace, but persuaded several abbots to follow his example. Henry VII. was so pleased with his ready obedience on this occasion, that he sent him, in 1535, on an embassy to Scotland; in the same year made him bishop of St

Asaph; in two months after translated him to the see of St. David's, and in 1547 to that of Bath and Wells. During this time our good bishop, as appears from his epistle to the king, was, or pretended to be, a staunch papist. It was written in 1533, and in it he regrets that he had 'made certayn bokes, and soffred them to be imprinted, as the tretise of buryall of the masse, &c. In these tretises I perceive and acknowledge myself grievously to have erred against the blessed sacrament of the altare; disallowing the masse and denying purgatory, with slanderous infamy of the pope and my lord cardinal,' &c. However, when Edward VI. came to the crown, he was again a protestant; and for that reason, on queen Mary's accession, was deprived of his bishopric, and sent prisoner to the Fleet, where he continued some time. At length he found means to escape, and join the other English Protestants in Germany. Upon queen Elizabeth's accession, he was raised to the see of Chichester, and soon after made a prebendary of Westminster. He died in 1568, and was buried at Chichester. He had five daughters, each of whom married a bishop. He wrote, 1. The Buryall of the Masse. 2. The Climbing of Fryers and Religious Persons, portred with Figures. 3. Christian Homelies. 4. A Book upon Cosmography. 5. The Godly and Pious Institution of a Christian Man, commonly called the Bishop's Book; and several other works. He is said to have been the translator of the Apocrypha, as far as the Book of Wisdom. His letters to M. Parker, are in MS. in Corpus Christi College, Cambridge, Misc. i. 445.

Barlowe (William), a mathematician and divine, the son of the bishop, was born in Pembrokeshire, whilst his father was bishop of St. David's. In 1560 he was entered of Baliol college, Oxford; and in 1564 took a degree in arts, which having completed by determination, he left the university and went to sea; but in what capacity is uncertain: however, he acquired considerable knowledge in the art of navigation. About 1573 he became prebendary of Winchester, and rector of Easton near that city. In 1588 he was made prebendary of Litchfield, which he exchanged for the place of treasurer. Some years after, he was made chaplain to prince Henry, the son of king James I.; and in 1614 archdeacon of Salisbury. He was the first writer on the magnet He died in 1625, and was buried at Easton. His works are, 1. The Navigator's Supply, containing many things of principal importance belonging to Navigation, and the use of divers instruments framed chiefly for that purpose. Lond. 1597, 4to. Dedicated to Robert, earl of Essex. 2. Magnetical Advertisements, or divers pertinent observations and approved experiments concerning the nature and properties of the Loadstone. Lond. 1616, 4to. 3. A Brief Discovery of the idle animadversions of Mark Ridley, M. D. upon a treatise entitled Magnetical Advertisements. Lon. 1618, 4to.

BARM. Goth. *barm*, Ang. Sax. barm, bearm. To cherish; to foster as in the bosom.

And in hire *barme* this litel child she leid,
With full sad face, and gan the child to blesse,
And lulled it, and after gan it kisse.
Chaucer. The Clerkes Tale.

A seint she wered, barred all of silk,
A *barmecloth* eke as white as morwe milk.
Id. The Millères Tale.

Barm', } Welsh, *burm*, Sax. beorm. Yeast:
Barm'y. } the ferment put into drink, to make it work; and into bread to lighten and swell it.

Are you not he
That some'ime makes the drink to bear no *barm*;
Mislead night wand'rers, laughing at their harm?
Shakspeare.

Try the force of imagination upon staying the working of beer, when the *barm* is put into it. *Bacon.*

Their jovial nights in frolics and in play
They pass, to drive the tedious hours away;
And their cold stomachs with crown'd goblets cheer,
Of windy cider, and of *barmy* beer. *Dryden.*

Barm is said to have been first used by the Celtæ in the composition of bread. About the time of Agricola's entrance into Lancashire, a new sort of loaf had been introduced at Rome; which was formed only of water and flour, and much esteemed for its lightness; and it was called the water-cake from its simple composition, and the Parthian roll from its original inventors. But even this was not comparable to the French or Spanish bread for its lightness. The use of curmi, see Ale, and the knowledge of brewing, had acquainted the Celtæ with an ingredient for their bread, which was much better calculated to render it light and pleasant, than the leaven, the eggs, the milk, or the wine and honey of other nations. This was the spume which arose on the surface of their curw in fermentation, and which the Welch denominate burm, and we barm. The Celtæ of Gaul, of Spain, and most probably, therefore, of South Britain, had long used it; and their bread was, in consequence of this, superior in lightness to that of any other nation in the world. See Baking, Bread, and Yeast.

BAR-MASTER. See Bargh-Master.

BARMEKIN, a hill of Scotland, in the parish of Echt, in Aberdeenshire, of a conical shape. On the top of it are the remains of an ancient fortification, respecting which tradition is silent. Two dry stone walls and three ditches, all circular, are visible. The inner wall appears to have been twelve feet thick, and 330 yards in circumference: the outer about six feet thick and the outer ditch 560 yards in circumference.

BARMOUTH, a small market and sea-port town, in Merionethshire, South Wales. It is very pleasantly situated, and is much frequented as a bathing-place: 222 miles from London, and ten from Dalgelly,

BARMINE denotes such mine or ore as is adjudged at a court of Barghmote.

BARMOTE. See Barghmhte.

BARN, *v.* & *n.* See to *bar*, bairgain, Goth. to defend; to protect. A covered enclosure in which grain, &c. is protected and defended.

But of herr songe it was as loud and yerne
As any swallow sitting on a *berne*;
Therto she coud skip and make a game
As any kid or calf following his dame. *Chaucer.*

While the cock with lively din
Scatters the rear of darkness thin,
And to the stack or the *barn* door
Stoutly struts his dames before. *Milton.*

And as an owl that on a *barn*
Sees a mouse creeping in the corn
Sits still, and shuts his round blue eyes
As if he slept, until he spies
The little beast within his reach,
Then starts and seizes on the wretch. *Hudibras.*

In vain the *barns* expect their promis'd load;
Nor *barns* at home, nor reeks are heap'd abroad.
Dryden.

I took notice of the make of *barns* here: having laid a frame of wood, they place, at the four corners, four blocks, in such a shape, as neither mice nor vermin can creep up. *Addison.*

An owl of grave deport and mien,
Who (like the Turk) was seldom seen,
Within a *barn* had chose his station
As fit for prey and contemplation. *Gay.*

As near a *barn*, by hunger led,
A peacock with the poultry fed;
All view'd him with an envious eye
And mock'd his gaudy pagaentry. *Id.*

BARN. See BEARN. The past participle of *bearan*, to bear a child; *bearen* or *born*; still in use.

Goodlucke (and't be thy will), what have we here? mercy on's, a *barne*, a very pretty *barne*.
Shakspeare. Winter Night's Tale.

BARNABAS (St.), was born at Cyprus, and descended of the tribe of Levi, whose Jewish ancestors are thought to have retired thither to secure themselves from violence during the troublesome times in Judea. His proper name was Joses, to which, after his conversion to Christianity, the apostles added that of Barnabas, signifying the son of consolation. The time of his conversion is uncertain; but he is generally esteemed one of the seventy disciples chosen by our Saviour himself. At Antioch, Paul and Barnabas had a contest, which ended in their separation: what followed with respect to St. Barnabas is not related in the Acts of the Apostles. Some writers say, he went into Italy, and founded a church at Milan. He suffered martyrdom at Salamis, where some Jews, being come out of Syria, assailed him as he was disputing in the synagogue, and stoned him to death. He was buried by his kinsman Mark, whom he had taken with him, in a cave near that city. The remains of his body are said to have been discovered in the reign of the emperor Zeno, with a copy of St. Matthew's Gospel, written with his own hand, lying on his breast.

BARNABAS'S DAY (St.), a Christian festival, celebrated on the 11th of June.

BARNABAS'S EPISTLE (St.), an apocryphal work ascribed to St. Barnabas, and frequently cited by St. Clement of Alexandria and Origen. It was first published in Greek, from a copy of father Hugh Menard, a Benedictine monk. An ancient version of it was found in a MS. of the abbey of Corbey, near 1000 years old. Vossius published it in 1656, with the epistles of St. Ignatius.

BARNABAS'S GOSPEL (St.), another apocryphal work, ascribed to St. Barnabas, the Apostle, wherein the history of Jesus Christ is related in a manner very different from the account given us by the four Evangelists. The Mahommedans have this gospel in Arabic, and it corresponds very well with those traditions which Mahomet followed in his Koran. It was, probably, a forgery of some nominal Christians; and afterwards altered and interpolated by the Mahommedans, the better to serve their purpose.

BARNABITES, a religious order, founded in the sixteenth century by three Italian gentlemen, who had been advised by a famous preacher of those days to read carefully the epistles of St Paul. They are regular priests of the congregation of St. Paul; hence they were called Clerks of St. Paul; and Barnabites, because they performed their first exercise in a church of St. Barnabas, at Milan. Their habit is black; and their office is to instruct, catechise, and serve in mission.

BARNACLE, *n. s.*, probably of beann, Sax. a child, and aac, Sax. an oak. A kind of shell-fish that grows upon timber that lies in the sea. A bird, like a goose, fabulously supposed to grow on trees.

It is beyond even an atheist's credulity and impudence to affirm, that the first men might grow upon trees, as the story goes about *barnacles*; or might be the lice of some vast prodigious animals, whose species is now extinct. *Bentley.*

And from the most refin'd of saints
As naturally grow miscreants,
As *barnacles* turn Soland geese
In th' islands of the Orcades. *Hudibras.*

BARNACLE, an instrument made commonly of iron for the use of farriers, to hold a horse by the nose, to hinder him from struggling when an incision is made. It is also called horse-twitcher, or brake. The barnacle differs from pinchers, as the latter have handles whereby to hold them; whereas the former is fastened to the nose with a lace or cord.

BARNACLE, in ichthyology, a kind of shell-fish, which cleaves to the bottoms and sides of ships in certain seas; the same with what is called by sailors clam; by naturalists, concha anatifera. There are divers species of shell fishes included under the denomination barnacles. some reduce them to two, viz. the balanus and pinna marina. See an account of several rare species of barnacles, by John Ellis Esq. Philosophical Transactions, vol. i. part ii. No. 113.

BARNACLE or BERNACLE, a species of Anas, common in the western isles of Scotland.—See ANAS. Concerning the origin and species of this bird many fables have been advanced. Several authors have represented it as the produce of a shell-fish; but later naturalists, on better grounds, refer it to the natural manner of generation; making it a real goose, produced like others from an egg. Some reckon the barnacle the same with the anser Scoticus, or Soland goose, others will have it to be the same with the French macreuse. Dr. Robinson makes the barnacle to be of the goose, and the macreuse of the duck kind. The same author shows, that the macreuse is the scoter, or anas niger minor, described by Ray and Willughby, contrary to the opinion of Mr. Cattier, who took it for the greater coot of Bellonius.

BARNADESIA, in botany, a genus of the polygamia æqualis order, belonging to the syn-

genesia class of plants; the characters of which are: the COR. is radiated; the CAL. is naked, imbricated, and pungent; the pappus of the rays feathery, of the disk bristly and retrofracted. There is but one species, viz. B. spinosa, a native of America.

BARNARD, or BERNARD (John), the son of John Barnard, gent. was born at Castor in Lincolnshire, and educated at Cambridge. After several preferments, he was made a prebendary of the church of Lincoln. He wrote Censura Clerica, against scandalous ministers not being fit to be restored to church livings; the Life of Dr. Heylin; and several other works. He died at Newark, Aug. 17th, 1783.

BARNARD (Sir John), M. P. for London, a spirited member of the opposition party, in the reigns of Geo. I. and II. He was born at Reading in Berkshire in 1685. His father was a wine merchant, to whose business he succeeded. He particularly distinguished himself, on being appointed by the body of wine merchants to state before the house of lords their objections to a bill then pending in that house; and, from the abilitities he displayed on that occasion, was nominated, in 1721, candidate for the city of London, and elected the following year. In 1725 he received the thanks of the common council, for opposing a bill introducing a change in the city elections. In 1727 he presented a bill for the better regulation of seamen. In 1730 he made a violent opposition to the bill prohibiting British subjects from lending money to foreign princes. In 1732 he received the honor of knighthood from Geo. II. whom he attended with an address; and, in 1733, he acquired much popularity in opposing Sir R. Walpole's excise bill, which was at last obliged to be relinquished, In 1735 he introduced a bill to limit the number of play-houses, which passed two years after, and is still in force. In 1737 he formed a scheme for reducing the interest on the national debt, which was afterwards adopted. In 1736 he and his brother-in-law, Sir R. Godschall, were elected sheriffs, and in 1738 he was chosen lord mayor of London. He died at Clapham in 1766, aged eighty, after repeatedly receiving the thanks of his fellow citizens for his public conduct.

BARNARD, a township of Vermont, in Windsor county; sixty-five miles north-east of Bennington.

BARNARD'S CASTLE, a town and barony on the Tees, in the county of Durham, belonging to the earl of Darlington. It is fifteen miles from Richmond, thirty south-west of Durham, and 244 north-west of London; has a market on Wednesday, and fairs on Whit-wednesday, St. James's day, and 25th July.

BARNAUL, a town of Siberia, on the river of the same name, which falls into the Obi. It consists of 1000 houses, built chiefly of wood, with several public edifices of stone. This town is the seat of the supreme chancery of the mines contained in the great Altaian mountain chain, and has under its jurisdiction 40,000 peasants. Many of the foundries, however, are abandoned from the want of fuel, which has been exhausted. There is still one mine in the vicinity of Barnaul, very productive both in gold and silver. A foundry of bells, and manufactories of tiles and glass, are carried on in the town. Distant 100 miles south-east of Kolhyvane.

BARNAVE (Anthony), a victim of French republicanism, was born in 1762. Having become a member of the national assembly, he was there distinguished by the warmth and zeal which he displayed. On the stopping of the king at Varennes, he was appointed to conduct his majesty and family to Paris, in doing which he showed the most respectful attention to the royal captives. He was afterwards accused of being a royalist, and guillotined at Paris in 1794.

BARNAY, an ancient fort of Dunse, in Berwickshire. Dr. Anderson of Chirnside says, these Barnays, or Barnekins, were a kind of forts commonly placed, during the feudal system, at some distance from the baron's castle, to defend the bridge or passage to it.

BARNES (Joshua), a learned divine, born in London in 1654. He was educated at Christ's hospital, from whence he removed to Emanuel college, Cambridge, where he was chosen queen's professor of Greek in 1695; a language he wrote and spoke with the utmost facility. His first publication was a whimsical tract, entitled Gerania, or a New Discovery of the little sort of people called Pygmies. After that appeared his Life of Edward III. In 1700, when he had published many of his works, Mrs. Mason, of Hemmingford, in Huntingdonshire, a widow lady of between forty and fifty, with a jointure of £200 per annum, came to Cambridge, and desired leave to settle £100 a-year upon him after her death; which he politely refused, unless she would also condescend to make him happy with her person; and they were accordingly married. He wrote several other books, viz. Sacred Poems; the Life of Oliver Cromwell, the Tyrant; several dramatic pieces; a Poetical Paraphrase on the History of Esther, in Greek verse, with a Latin translation, &c.; and he published editions of Euripides, Anacreon, and Homer's Iliad and Odyssey, with notes and a Latin translation. This excellent man died in 1712, in the fifty-eighth year of his age.

BARNES (Robert), a martyr for the doctrines of Luther, was brought up to the church, obtained the degree of D. D., and became chaplain to Henry VIII., by whom he was sent to Germany, to consult with the divines of that county respecting the lawfulness of his divorce. While in that country he adopted the doctrines of the Reformation, and on his return to England propagated his new opinions with such zeal that he was taken into custody, brought to the stake, and burnt at Smithfield in 1540. He was author of a treatise on Justification, and several other tracts.

BARNET, CHIPPING BARNET, or HIGH BARNET, a town on the top of a hill, partly in Middlesex, and partly in Hertfordshire, eleven miles north by west of London. It is a great thoroughfare; has a market on Wednesday, and two fairs, on April 8th, 9th, 10th, and September 4th, 5th, 6th. Near it two great battles were fought between the houses of York and Lancaster, in 1468, and 1471; in the last of which the earl of

Warwick and 10,000 men were slain. In 1740 Sir Jeremy Sambrooke, Bart. erected a stone column with an inscription on the spot.

BARNEVELDT (John d'Olden), the celebrated statesman, and one of the founders of the civil liberty of Holland, was born about 1550. He had a noble bold air, an expressive eye, and was an able speaker. He possessed a genius equally suited to commerce, finance, and negociation; the art of pushing any favorite point without seeming importunate, and of withdrawing without appearing indolent; the singular talent of penetrating the secrets of others, whilst he concealed his own. His merit raised him to the first dignities in the government, where he showed himself an enemy to injustice, bribery, parties, and novelties, even though they might appear useful. He undertook to restore the credit of his country, and had the good fortune to succeed. He was the chief author of the truce in 1599, which was concluded for twelve years, between the Arch Duke and the states. He had, by his assiduity prevented the latter from taking part in the troubles of Bohemia, of which Maurice, prince of Orange, was willing to avail himself, to advance his fortune. Barneveldt, who perceived the designs of this ambitious prince, judged it was his duty to oppose him, and Maurice never pardoned his zeal for the liberty of the republic; but having got his partisans to accuse him of a design to deliver his country into the hands of the Spanish monarch, on this absurd charge, he was tried by twenty-six commissaries deputed from the seven provinces, condemned to lose his life and his fortune confiscated. He heard the sentence with great composure. 'I have served the states,' said he, 'thirty years as pensionary of Holland, and the city of Rotterdam as pensionary ten years before. My labors and fidelity deserved another reward. If you will have my blood, it should seem that you might spare my fortune, and not ruin, on my account, my wife and children.' He was beheaded in 1619.

BARNEVELDT (Renatus and William), sons of the above, with a view of revenging their father's death, formed a conspiracy against the stadtholder, which was discovered. William fled; but Renatus was taken and condemned to die; which fatal circumstance has immortalised the memory of his mother, of whom the following anecdote is recorded. She solicited a pardon for Renatus; upon which Maurice expressed his surprise, that she should do that for her son which she had not done for her husband. To this she replied with indignation, 'I would not ask a pardon for my husband, because he was innocent. I solicit it for my son, because he is guilty.'

BARNEVELDT, an island, south of Terra del Fuego. Long. 66° 58′ W., lat. 55° 49′ S.

BARNFIARD, in ornithology, the name of a bird usually seen at sea, and esteemed as a foreteller of bad weather. It is about the size of a sparrow, its neck and back are black, and its breast and belly gray; its feet are red, and its bill black and somewhat broad. It skims very nimbly along the surface of the water.

BARNSTABLE, a county and peninsula of Massachusetts, bounded on the east and south by the Atlantic Ocean, north by Cape Cod Bay, west by Buzzard's Bay, and north-west by Plymouth county, where it is but four miles broad This county lies nearly in the form of a man's arm when bent, with his hand turned inwards. The whole extent on the outer shore, from Woodend to Buzzard's Bay, is about 120 miles; and the inner shore on Cape Cod is nearly seventy; its greatest breadth is not more than two miles. It is in general a barren sandy soil, perhaps more so than any other part of the eastern states. The trees which grow here are mostly pitch-pine. It abounds with ponds of fresh water, generally well stored with fish. The principal produce is Indian corn and rye. It is divided into ten townships, viz. Barnstaple, Falmouth, Sandwich, Yarmouth, Harwich, Eastham, Wellfleet, Chatham, Truro, and Province-town. The chief towns are Barnstable and Falmouth.

BARNSTABLE, a port of entry and post town of Massachusetts; situated in the above county, at the head of a bay of its own name. It is seventy-two miles south-east by south of Boston, and 119 of Philadelphia. Long. 4° 5′ E. lat., 41° 43′ N.

BARNSTABLE, or BARNSTAPLE, a sea-port town of Devonshire, seated on the river Taw, over which there is a good bridge. It is a corporation town, and sends two members to parliament. It lies thirty-six miles north of Exeter, and 191 from London, has a market on Friday, and fairs, Friday before April 21, September 19, and second Friday in December, which last four days, toll free.

BARNSTEAD, a township of New Hampshire, in Stafford county, thirty-two miles north-west of Portsmouth.

BARNWELL, i. e. Bairn's Well, a village about half a mile north-east of Cambridge. In 1092, a priory being founded in Cambridge in honor of St. Giles, by Hugolina, a Norman lady, Paganus Peverell, a favorite of Henry I., received a grant of the property; and finding the site upon which it had been commenced too small, he transferred it to the spot now called Barnwell, where many of the ancient walls still remain. A pottery fair is held yearly here, on a common called Midsummer-green, which commences on St. John's day, and lasts a fortnight. It assumed a legal form as early as the reign of Henry III., and is proclaimed by the heads of the university. Another fair, called Sturbridge fair, annually held in a meadow in this parish, has been traced by Dr. Stukely to the times of Carausius. Assured documents trace it up to king John, who granted it for the use and maintenance of a hospital of lepers, which here possessed a chapel dedicated to St. Mary Magdelen, which is still in existence. By a charter of Henry VIII. this fair was transferred to the mayor and corporation of Cambridge on the payment of 1000 marks. On the fourth of September the ground is marked out. On the eighteenth, the university officers first, and then the officers of the corporation, proclaim the fair, which lasts fourteen days. One of these days (September 25) is appropriated to the sale of

horses. It was formerly the largest fair in England; and was attended in the year 1605 by Hackney coaches from London.

BARO, or Baron (Peter), was born at Estampes in France, and educated in the university of Bourges, where he was admitted a licentiate in the law: but, being of the Protestant religion, he was obliged to leave his native country to avoid persecution; and withdrawing into England, was kindly entertained by Lord Burleigh. He afterwards settled at Cambridge; and by Lord Burleigh's recommendation, was, in 1674, chosen professor of divinity there. For some years he quietly enjoyed his professorship; but at last a restless faction was raised against him, by his opposing the doctrine of absolute predestination, which rendered his place so uneasy that he left the university, and settled in London. He wrote, 1. In Jonam Prophetam Prælectiones xxxix; 2. De Præstantia et Dignitate Divinæ Legis; and other pieces. He died in London, about 1600.

BAROCCI, or Barozzi (Francis), a noble Venetian, who distinguished himself in the latter half of the sixteenth century by his erudition, and his extensive knowledge of mathematics. He had, however, the weakness to believe in magic, and his attempts to practise it brought him into the hands of the Inquisition, from which he escaped with difficulty, by the payment of a heavy fine. His published works are, Translations from Proclus and Hiero; four books of a Treatise on Cosmography; a Treatise on Geometry; and a curious volume, intituled, Il Nobilissimo ed Antichissimo giuco Pitagorico chiamata Ritmomachia, cioè battaglia di consonanze di numeri, with figures, imitated from the Latin of Buxerius. Among his MSS. is a description of Crete.

BAROCCIO (Frederic), a celebrated painter, born at Urbino. In his youth he travelled to Rome, where he painted several things in fresco. He then returned to Urbino: and giving himself up to intense study, acquired a great name in painting. His genius particularly led him to religious subjects. At his leisure hours he etched a few prints from his own designs; which are highly finished, and executed with great softness and delicacy. The Salutation is his capital performance in that way: of which we seldom meet with any impressions, but those taken from the retouched plate, which are very harsh. He died at Urbino in 1612, at the age of eighty-four.

BAROCHAN, a barony in the parish of Houstoun, in Renfrewshire, belonging to an ancient family of the name of Fleming, whose ancestors came from Flanders in the reign of David , and one of whom was killed at the battle of Floddon. It had a very ancient cross on the side of the public road, which was removed by the proprietor, Malcolm Fleming, Esq. to a hill where the old mansion-house stood. In the front of this cross, there are two rows of images, four in each row, with long garments and clubs over their shoulders. Tradition is silent respecting it. The barony abounds in free-stone, coals, and lime-stone, and the mansion-house is ornamented with plantations of ash, plane, oak, larch, and fir.

BAROCHE, or Broach, capital of a district of the same name, in the province of Gujrat, on the north bank of the Nerbuddah. It is walled round, and was formerly a place of great trade. It is now inhabited by weavers and manufacturers of cotton cloth. Here they have the best cotton in the world, and of consequence the best baftas are manufactured in this place. The waters of the Nerbuddah are also said to have the peculiar property of bleaching cloths to a pure white. Baroche was ceded to Madhajee Sindia in 1782, but was retaken from his successor, Dowlet Row in 1803, by Sir Arthur Wellesley, and has ever since remained in possession of the British. Long. 72° 5′ E., lat. 22° 15′ N.

BAROCO, in logic, a term given to the fourth mode of the second figure of syllogisms. A syllogism in baroco has the first proposition universal and affirmative, but the second and the third particular and negative, and the middle term is the predicate in the two first propositions. Example:

Ba Every man is a two-legged animal:
ro But every animal is not two-legged;
co Therefore every animal is not a man.

BAROM'ETER, } From *βαρος*, weight, and
Barometr'ical. } *μετρον*, measure. A machine for measuring the weight and variations of the atmosphere, in order to determine the changes of the weather, the elevation of particular parts of the earth's surface, &c.

The measuring the heights of mountains, and finding the elevation of places above the level of the sea, hath been much promoted by *barometrical* experiments, founded upon that essential property of the air, its gravity or pressure. As the column of mercury in the *barometer* is counterpoised by a column of air of equal weight, so whatever causes make the air heavier or lighter, the pressure of it will be thereby increased or lessened, and of consequence the mercury will rise or fall. *Harris.*

He is very accurate in making *barometrical* and thermometrical instruments. *Derh. Physico-Theol.*

Barometer. The name baroscope, signifying an indication of weight, was originally given to the mercurial tube by Sinclair, professor of philosophy in the university of Glasgow, in Charles II. reign: but the more definite one of barometer, obtained universally a short time afterwards. The barometer is founded upon the Torricellian experiment, so called from Torricelli the inventor of it, at Florence, in 1623; it is a glass tube, filled with mercury, horizontally sealed at one end; the other open and immerged in a basin of stagnant mercury; so that, as the weight of the atmosphere diminishes, the mercury in the tube will descend, and, as it increases, the mercury will ascend; the column of mercury suspended in the tube being always equal to the weight of the incumbent atmosphere. It was long the common opinion among philosophers, that the ascent of water in pumps was owing to what they called nature's abhorrence of a vacuum; and that thus fluids might be raised by suction to any height whatever. But an accident having, early in the seventeenth century, discovered that water could not be raised in a pump, unless the sucker reached to within thirty-three feet of the water in the well, it was conjectured by Galileo, who flourished about that

time, that there might be some other cause of the ascent of water in pumps, or at least that this abhorrence was limited to the finite height of thirty-three feet. Being unable to satisfy himself on this head, he recommended the consideration of the difficulty to Torricelli, who had been his disciple. After some time Torricelli suspected that the pressure of the atmosphere was the cause of the ascent of water in pumps; that a column of water thirty-three feet high was just a counterpoise to a column of air of the same base, and which extended up to the top of the atmosphere; and that this was the true reason why the water did not follow the sucker any further. And this suspicion was soon after confirmed by various experiments. Torricelli considered, that if a column of water thirty-three feet high were a counterpoise to a whole column of the atmosphere, then a column of mercury of about two feet and a half high would also be a counterpoise to it, since quicksilver is nearly fourteen times heavier than water, and so the fourteenth part of the height, or nearly two feet and a half, would be as heavy as the column of water. This reasoning he soon verified; for having filled a glass tube with quicksilver, and inverted it into a basin of the same, the mercury presently descended till its height, above that in the basin, was about two feet and a half, just as he expected. And this is what has, from him, been called the Torricellian experiment. The new opinion, with this confirmation of it, was readily acquiesced in by most philosophers, who repeated the experiment in various ways. Some, however, still adhered to the old doctrine of Linus, and raised several objections aginst the new one; such as that there was a film or imperceptible rope of mercury, extended through the upper part of the tube, which suspended the column of mercury, and kept it from falling into that in the basin. But this and other objections were soon overcome by additional confirmations of the true doctrine; particularly by varying the elevation of the place. It was hinted by Descartes and Pascal, that if the mercury be sustained in the tube by the pressure of the atmosphere, by carrying it to a higher situation it would descend lower in the tube, having a shorter column of the atmosphere to sustain it, and vice versa. And Pascal engaged his brother-in-law, M. Perier, to try that experiment for him, being more conveniently situated for that purpose than he was at Paris. This he accordingly executed, by observing the height of the quicksilver, in the tube, first at the bottom of a mountain in Auvergne, and then at several different altitudes; wherein it was found that the mercury fell lower and lower all the way to the top of the mountain; and so confirming the truth of the doctrine relating to the universal pressure of the atmosphere, and the consequent suspension of the mercury in the tube of the barometer. Thus, by the united endeavours of Torricelli, Descartes, Pascal, Mersenne, Huygens, and others, the cause of the suspension of the quicksilver in the tube of the barometer became pretty generally established. It was some time, however, after this general consent before it was known that the pressure of the air was various at different times at the same place. This could not, however, remain long unknown. The frequent measuring of the column of mercury soon showed its variations in altitude; and experience and observation taught that those variations in the mercurial column were always succeeded by certain changes in the weather, as to rain, wind, frosts, &c. Hence this instrument soon came into use, as the means of foretelling the changes of the weather; and on this account it obtained the name of the weather-glass, as it did that of barometer from its measuring the weight or pressure of the air.

It should not be forgotten that Pascal and his brother-in-law seem clearly to have seen the possibility of those numerous experiments of modern times, for ascertaining the altitude of mountains by the barometer. Early in the morning of the 19th of Sept. 1648, the latter assembled with a few friends in the garden of a monastery, situate near the lowest part of the city of Clermont, where he had brought a quantity of mercury, and two glass tubes hermetically sealed at the top. Having filled and inverted them as usual, he found the mercury to stand in both at the same height, namely, 26 inches and 3¾ lines, or 28 English inches; when leaving one behind, in the custody of the subprior, he proceeded with the other to the summit of the mountain, and repeated the experiment. Here the party were surprised and delighted to see the mercury sink more than three inches under the former mark, and remain suspended at the height of 23 inches and 2 lines, or 24·7 English inches. In his descent from the mountain, he observed, at two several stations, that the mercury successively rose; and, on his return to the monastery, found it stood exactly at the same point as at first. Encouraged by the success of this memorable experiment, Perier repeated it on the highest tower of Clermont, and noted a difference of two lines at an elevation of twenty toises. Pascal, as soon as the intelligence reached him at Paris, made similar observations on the top of a high house, and in the belfry of the church of St. Jacques des Boucheries, near the border of the Seine; and so much was he satisfied with the results, that he immediately proposed the application of the barometer for measuring the relative height of distant places on the earth's surface. The substance, therefore, of all that has since been more accurately ascertained, was thus at once discovered. Pascal, it is well known, was attacked and persecuted as a heretic by the Jesuits, for these and similar pursuits; and when no other weapon would avail, they contested the originality of his experiments. Their base conduct on this occasion, however, only stimulated his ardor, and gave a keener edge to that wit, which he afterwards directed with such overwhelming energy against this insidious order of the priesthood. In 1653, he composed, though they were not published till after his death, two short but perspicuous treatises, On the Equilibrium of Liquors, and On the Weight of the Mass of Air. The laws of the equilibrium of fluids are here beautifully deduced from a single principle. In those tracts, he likewise gives a description of the hydraulic press. It has, however, been truly remarked, that the intention of these philosophers, was merely to ascertain whe-

ther the height of the mercury was affected by being carried to different altitudes, and it was some time afterwards that theorems and formulæ were invented for the purpose of barometrical measurement; the balance between the mercury and the atmosphere was indeed known, but the value of the weights remained to be determined. The first thing necessary to be ascertained was the law of the condension of air under different pressures. Mariotte in France, and Boyle and Townley in England, found from experiment that the density of this fluid was proportional to the compressing weight; but this law is only true when the temperature of the air remains constant; and attention was not at first paid to this important restriction, which in fact could not be indicated by experiments where the compressed volumes of air differed but little from each other in respect to temperature.

The law of compression being otherwise known, Halley made use of it for calculating the decrease of density in the beds of the atmosphere at various altitudes; and thus led to the mathematical formulæ, by means of which the difference of altitude of two places may be calculated from the weights of the mercury in the barometer observed at each of them. Newton, in his Principia, perfected Halley's theory, by showing that regard was to be paid to the diminution of gravity, according as the distance from the surface of the earth increased; but, what is very remarkable, he, as well as Halley, omitted to consider the effect of the variations of heat, and of the progressive decrease of the temperature and density of the different strata of the atmosphere. The barometrical formulæ thus obtained, without the correction which renders them applicable to all temperatures, could only furnish a very imperfect approximation, and therefore philosophers and mathematicians, who endeavoured to apply them, found that they succeeded only in a few instances, and that generally the results seemed to be subject to various errors, which appeared to follow no law. Hypotheses were therefore formed for explaining these irregularities; but some maintained that no dependence whatever was to be placed upon such theorems; and others, that they ought to be wholly excluded from works of science. No person seems to have conjectured the true cause; and the omission is the more remarkable, when we reflect that Bouguer and Lambert, men of such peculiar and opposite talents; the one a most accurate observer and philosopher, and the other a very inventive and acute mathematician, were both much occupied with this instrument, and its application.

Deluc at last discovered the true source of these errors and anomalies, by searching in the observations themselves for the correspondence between the temperature of the air and the correction which the general formula required. Numerous experiments on the comparative expansions of air and mercury enabled him to perceive the law that those corrections ought to follow, and the quantity in all cases which should be assigned to them.

This remarkable discovery, by giving to the barometrical formula an unexpected accuracy, animated the zeal of philosophers, and observations were multiplied to a great extent. Dr. Maskelyne undertook to reduce the new formula into English measures, while Playfair added a correction for the variation of gravity in different latitudes. Sir George Shuckburgh, by very exact measures, verified the results of M. Deluc, and gave them a greater degree of precision: General Roy also made an application of it at a great number of places in the progress of his survey: the Alps were levelled by MM. Saussure and Pictet; the Pyrenees by M. Ramond, and the Andes by Humboldt; and the barometer rendered portable, became an indispensable instrument to all well-informed travellers.

Still the theory of barometrical levelling was far from being brought to its most simple terms. M. Deluc had adapted the constant co-efficient of his formula to a certain degree of the thermometer, which he called the normal temperature, and which he had fixed from the condition, that, for this temperature, the difference of level became a decimal multiple of the difference of the tabular logarithms of the observed barometrical heights. All the corrections relative to temperature which the formula required, commenced, therefore, according to M. Deluc, at the normal temperature; in consequence of which this point of commencement changed whenever the formula was applied to any other measures than French toises. These variations were very inconvenient: and it appeared much more natural to make all the corrections commence at some fixed term, as, for example, the freezing point, which is given by experiment, and common to observers of all countries. This is what Laplace has done, in a chapter of his Mécanique Celeste, in which he has established the requisite formula upon the most simple and accurate data. He determines the correction for temperature relative to the expansion of air, according to the experiments of M. Gay Lussac; but he has modified his results in such a manner as to take into the account the humidity of the atmosphere; and, what is very fortunate, the sum of this correction and the co-efficient of the expansion of air is just equal to $\frac{1}{1000}$. With respect to the expansion of mercury, Laplace employed the values obtained, in conjunction with Lavoisier, in experiments on the expansion of bodies, of which there unhappily remains only a small number of results. Finally, he determined the general co-efficient of the formula from barometrical observations themselves, by combining for this purpose, a great number of experiments made in the Pyrenees by M. Ramond, with a degree of care and an accuracy before unknown in this science. The value of this co-efficient has since been confirmed in a direct manner by the experiments made by M. Arago and M. Biot, on the comparative weight of air and mercury; so that all the elements of the barometrical formula, the research of which, has cost travellers so much labor, has been obtained directly, and with great accuracy, without quitting the chemical laboratory. Laplace's formula, founded upon data so exact and so ably combined, coincides with observations better than any other in which these advantages are not united, and the rigorous proofs to which MM. Ramond and Daubusson have submitted it ex-

perimentally, have demonstrated its utility. It still remained, however, to render the observations comparable with each other, though made with different barometers; which has also been done by Laplace, who has shown that the different indications of these instruments, in circumstances otherwise equal, are the effect of capillary attraction, and has given tables for correcting this effect.

The barometrical formula being thus improved, observations with that instrument have been considerably multiplied, and carried to a degree of precision almost incredible; a precision which has already led to the idea of distinguishing every place on the globe (in addition to its latitude and longitude) by its height above the level of the sea, or rather by its distance from the centre of the earth; which corresponds in principle with the determination of the position of a point in absolute space, by means of three rectangular co-ordinates; with this view various tables have been computed, and principles of approximation and compensation invented, highly creditable to their respective authors.

It remains only for us to describe the progressive improvement of this instrument. 1. The common, or Torricellian barometer, is represented in our plate BAROMETERS, fig. 1. A B is a glass tube, of $\frac{1}{4}$, or $\frac{1}{3}$, or $\frac{1}{2}$ inch wide (the wider the better), and about thirty-four inches long, being close at the top A, and the open end B immersed in a basin of quicksilver C D, which is the better the wider it is. To fill this, or any other barometer, take a clean new glass tube, of the dimensions as above, and pour into it well purified quicksilver, with a small funnel either of glass or paper, in a fine continued stream, till it wants about half an inch or an inch of being full; then stopping it close with the finger, invert it slowly, and the air in the empty part will ascend gradually to the other end, collecting into itself such other small air bubbles as unavoidably get into the tube among the mercury, in filling it with the funnel: and thus continue to invert it several times, turning the two ends alternately upwards, till all the air bubbles are collected and brought up to the open end of the tube, and till the part filled shall appear without speck, like a fine polished steel rod. This done, pour in a little more quicksilver to fill the empty part quite full, and so exclude all air from the tube; then stopping the orifice again with the finger, invert the tube, and immerse the finger and end, thus stopped, into a basin of purified quicksilver. In this position withdraw the finger, so shall the mercury descend in the tube to some place, as G, between twenty-eight and thirty-one inches above that in the basin at F, as these are the limits between which it always stands in this country, on the common surface of the earth. Then measure, from the surface of the quicksilver in the basin at F, twenty-eight inches to K, and thirty-one inches to I, dividing the space between them into inches and tenths, which are marked on a scale placed against the side of the tube; and the tenths are subdivided into hundredth parts of an inch by a sliding index carrying a vernier or nonius. These three inches, between twenty-eight and thirty-one, so divided, will answer for all the ordinary purposes of a stationary or chamber barometer; but for experiments on altitudes and depths, it is proper to have the divisions carried on a little higher up, and a great deal lower. In the proper filling and otherwise fitting up of the barometer, several circumstances are to be carefully noted; as, that the bore of the tube be pretty wide, to allow the freer motion of the quicksilver, without being impeded by an adhesion to the sides; that the basin below it be also pretty large, in order that the surface of the mercury at F may not sensibly rise or fall with that in the tube; that the bottom of the tube be cut off rather obliquely, that when it rests on the bottom of the basin there may be a free passage for the quicksilver; and that, to have the quicksilver very pure, it is best to boil it in the tube, which will expel all the air from it. This barometer is commonly fitted up in a neat mahogany case, together with a thermometer and hygrometer, as represented in fig. 2. As the scale of variation is small, being included within three inches in the common barometer, several contrivances have been devised to enlarge the scale, or to render the motion of the quicksilver more sensible.

Descartes suggested a method of increasing the sensibility of this instrument, which was executed by Huygens. This was effected by making the barometrical tube end in a pretty large cylindrical vessel at top, into which was inserted also the lower or open end of a much finer tube than the former, which was partly filled with water, to give little obstruction by its weight to the motion of the mercury, while it moved through a pretty long space of the very fine tube by a small variation of the mercury below it, and so rendered the small changes in the state of the air very sensible. But the inconvenience was, that the air contained in the water gradually disengaged itself, and escaped into the vacuum in the top of the small tube, till it was collected in a body there, and by its elasticity preventing the free rise of the fluids in the tubes, spoiled the instrument as a barometer. And this is the reason why a water barometer cannot succeed. This instrument, however, is represented in fig. 3. C D is the vessel, in which is united the upper or small water tube A C, with the lower or mercurial one C B. To remedy this inconvenience, Huygens thought of placing the mercury at top, and the water at bottom, which he thus contrived. A D G, fig. 5, is a bent tube hermetically sealed at A, but open at G, of about one line in diameter, and passing through the two equal cylindrical vessels, B C, E F, which are about twenty inches apart, and of fifteen lines diameter, their length being ten. The mercury being put into the tube, will stand between the middle of the vessels E F and B C, the remaining space to A being void both of air and mercury. Lastly, common water, tinged with a sixth part of aqua regia, to prevent its freezing, is poured into the tube F G, till it rises a foot above the mercury in D F. To prevent the water from evaporating, a drop of oil of sweet almonds floats on the top of it. But the column of water will be sensibly affected by heat and cold, which spoils the accuracy of the instrument. Although the invention of this barometer

was claimed by Huygens, and also by De la Hire, it appears first to have been contrived by Dr. Hooke in 1668, and described in Phil. Trans., No. 185. It is most delicately movable; and, when properly managed, by far the fittest for a chamber, or for amusement, by observations on the changes of the atmospheric pressure. The slightest breeze causes it to rise and fall, and it is continually in motion. But, for philosophical purposes, this, and all other instruments of the kind, are inferior to the common barometer, both on account of their being less manageable, and also in point of accuracy. For their scale must be determined in all its parts by the common barometer, and therefore, notwithstanding their great range, they are susceptible of no greater accuracy than that with which the scale of a common barometer can be observed and measured.

The horizontal or rectangular barometer of Bernoulli and Cassini is shown in fig. 4. AD is a pretty wide cylindrical part at the top of the tube, which latter is bent at right angles at B; the lower part, BC, being turned into the horizontal direction and closed above at A, but open at the lower end, where however the mercury cannot run out, being opposed by the pressure of the atmosphere. This, and the foregoing contrivance of Huygens, are obviously founded on the known principles of hydrostatics, 'that fluids of the same base press according to their perpendicular altitude, and not according to the quantity of their matter;' so that the same pressure of the atmosphere sustains the quicksilver that fills the tube BDA and the cistern D, as would support the mercury in the tube alone. Hence having fixed upon the size of the scale, as, for example, the extent of twelve inches instead of three, that is four times as long; the area of a section of the cylinder D must be four times that of the tube, and consequently its diameter double; so that for every natural variation of an inch of air in the cylinder AD, there will be a variation of four inches in the tube CB. But on account of the friction against the sides of the glass, the quicksilver is liable to break; and the rise and fall is then no longer equable; besides the mercury is in danger of being thrown out of the orifice at C, by any sudden motion of the machine.

The diagonal barometer, invented by Sir Samuel Moreland, fig. 6, is another method of enlarging the natural scale of three inches perpendicular, CD, by extending it to any length, BC, in an oblique direction. This is liable in some degree to the inconvenience of friction and breaking; and hence it is found that the diagonal part, BC, cannot properly be bent from the perpendicular more than in an angle of 45°, which only increases the scale nearly in the proportion of seven to five.

But the most perfect of all these instruments, on an enlarged scale, unquestionably is Dr. Hook's wheel barometer, fig. 7. This was invented about 1668, and is meant to render the alterations in the air more sensible. Here the barometer tube has a large ball, AB, at top, and is bent up at the lower or open end, where an iron ball, G, floats on the top of the mercury in the tube, to which is connected another ball, H, by a cord, hanging freely over a pulley, turning an index, KL, about its centre. When the mercury rises in the part FG, it raises the ball, and the other ball descends and turns the pulley, with the index, round a graduated circle from N towards M and P; and the contrary way when the quicksilver and the ball sink in the bent part of the tube. Hence the scale is easily enlarged ten or twelve fold, being increased in proportion of the axis of the pulley to the length of the index KL. But then the friction of the pulley and axis is some obstruction to the free motion of the quicksilver. Contrivances to lessen the friction, &c., may also be seen in the Phil. Trans. vol. 52, art. 29., and vol. 60, art. 10.

In the Philosophical Transactions, vol. 53, No. 29, Fitzgerald's improvement of the wheel barometer is described as furnished with two pulleys, which move on friction wheels; each of which turns an index on the centre of a graduated circle. The smallest circle is four inches in diameter, and divided into three equal parts, each again being subdivided decimally; and the changes, corresponding to the rise or fall of the mercury from twenty-eight to thirty-one inches, are marked on the margin of it, as they are on the scales of the common barometers. The large circle, which is proposed by the inventor to be thirty inches in diameter, is divided into three hundred equal parts, and the index belonging to it will therefore mark distinctly to the six-hundredth part of an inch in the rise and fall of the mercury. On the centre of this circle two registers are fixed, which are placed along the index when the instrument is adjusted; one of them is carried round as the index advances, and left round on its return; so that their distance will determine the limits of the variation from one observation to another.

Mr. Caswell's barometer, described in the Philosophical Transactions, vol. 24, seems to be as sensible and exact as any. Suppose ABCD, fig. 8, is a bucket of water, in which is the baroscope *x r e y z o s m*, which consists of a body *x r s m*, and a tube *e y z o*, which are both concave cylinders, made of tin, or rather glass, and communicating with each other. The bottom of the tube, *z y*, has a leaden weight to sink it, so that the top of the body may just swim even with the surface of the water by the addition of some grain weights on the top. When the instrument is forced with its mouth downwards, the water ascends into the tube to the height *z u*. To the top is added a small concave cylinder, or pipe, to keep the instrument from sinking down to the bottom: *m d* is a wire; and *m s*, *d e*, are two threads oblique to the surface of the water, which perform the office of diagonals: for while the instrument sinks more or less by an alteration in the gravity of the air, where the surface of the water cuts the thread is formed a small bubble, which ascends up the thread while the mercury of the common baroscope ascends, and vice versa. It appears from a calculation which the author makes, that this instrument shows the alterations in the air 1200 times more accurately than the common barometer. He observes, that the bubble is seldom known to stand still even for a

minute; that a small blast of wind, which cannot be heard in a chamber, will sensibly make it sink; and that a cloud passing over it always makes it descend, &c.

Rowning's Compound Barometer has several contrivances for enlarging the scale, and that in any proportion whatever. One of these is described in the Philosophical Transactions, No. 427, and also in his Natural Philosophy, part 2; and another in the same part, which is represented in fig. 9. ABC is a compound tube, hermetically sealed at A, and open at C; empty from A to D, filled with mercury from thence to B, and from hence to E with water. Hence, by varying the proportions of the two tubes AF and FC, the scale of variation may be changed in any degree.

A Steel-yard or Lever Barometer, is represented by fig. 13, which enlarges the scale in proportion of the shorter to the longer arm of a steel-yard. AB is the barometer tube, close at A and open at B, immersed in a cylindrical glass cistern CD, which is but very little wider than the tube AB is. The barometer tube is suspended to the shorter arm of an index like a steel-yard, moving on the fulcrum E, and the extremity of its longer arm pointing to the divisions of a graduated arch, with which index the tube is nearly in equilibrio. When the pressure of the atmosphere is lessened, the mercury descends out of the tube into the cistern, which raises the tube and the shorter arm of the index, and consequently the extremity of the longer moves downwards, and passes over a part of the graduated arch. And on the contrary this moves upwards when the pressure of the atmosphere increases.

Artists, however, have of late directed their efforts rather to adapt barometers for particular purposes, and to improve their accuracy of action, than to enlarge the scale.

An instrument called the Chamber Barometer, constructed by Messrs. Jones, opticians, is shown in fig. 11. It consists of a barometer *d*, thermometer *a a*, and hygrometer *c*, all in one mahogany frame. The thermometer or hygrometer of this apparatus may be separated from the frame, and occasionally used apart if necessary. The thermometer is separated by means of two screws *a a*: and the hygrometer by unscrewing a brass pin at the back of the frame. The index of the hygrometer is set at any time, merely by moving with the finger the brass wheel seen at *c;* and the two sliding indexes of the barometer and thermometer are moved by rack work, set in action by the key *g*, placed in the holes *h* and *i*. The divisions of the barometer, plate *b*, are in tenths of an inch, from twenty-eight to thirty-one inches, and these are subdivided into hundredths by the nonius or vernier scale, on a sliding slip of brass. The vernier scale is divided into ten equal parts, which are equal to eleven on the scale of inches, or to eleven-tenths of an inch. By this means the height of the mercury at E is evident merely by inspection to the one-hundredth part of an inch, according to the principle of the vernier scale.

A more common sort of barometer is frequently made, which differs from the one above principally in this, that mercury it is not supposed to register to the same degree of accuracy, having no vernier, and being meant for the common purposes of a weather-glass, its face is marked with different words indicating the probable shades of weather peculiar to different altitudes of the mercury. As the lowest state of the mercury in this country is not less than twenty-eight inches, nor the highest above thirty-one inches, this lowest point on the scale, on the face of the instrument, is marked stormy, and the latter very dry for summer, and on the other side very hard frost for winter. To the next half-inch below this highest point are written set. fair on the one side, and set. frost on the other. At thirty inches, the word fair is placed on the one side, and frost on the other; and at twenty-nine inches and a half there is marked changeable, both for summer and winter. At twenty-nine inches we have rain on the one side, and snow on the other; and at twenty-eight inches and a half, much rain on the summer side, and much snow on the winter; these terms, for want of room, are omitted in the figure.

In the better sort of these chamber barometers the reservoir of mercury is a leathern bag, which is more or less compressed by the atmosphere, according to its greater or less pressure, and the scale is supposed to commence from the bottom of the tube; there is also a screw at the bottom, fig. 29, by which the mercury may be forced to the top of the tube, and thus prevented from oscillating when the instrument is removed. This construction, however, is not sufficiently accurate for those instruments designed for the mensuration of altitudes; portable barometers, therefore, have several adjustments peculiar to this purpose.

Portable Barometer.—One of the best instruments of this kind, by Troughton, is exhibited in figs. 12, 13, 14, and 15, (Barometers, plate II.) Its distinguishing characteristic consists in the excellent manner in which the mercury in the cistern is set to the zero in the scale of inches. For this purpose a glass cylinder, of about two inches and a half diameter, and as much in length, contains the mercury. An external covering of hollow brass, terminating in an interior screw a little above and below the glass, admits external screw pieces, whose ends, well leathered, being pressed hard against the ends of the glass, prevent the escape of the fluid. Near the upper end of the brass cover are two slits, made horizontally, one before, and the other behind, exactly similar, and opposite to each other. At bottom is a screw, seen better in the section, fig. 13, which, acting upon the usual leathern bag, forces the quicksilver upwards at pleasure, and, by filling every part, renders the instrument portable. But the primary design of the screw is, to furnish the means of adjusting the surface of the mercury in the glass cistern, so as just to shut out the light from passing between it and the upper edges of the slits in the brass cover. This is the mode of adjusting to zero; and it follows, that the upper edges of the slits must represent the beginning of the scale of inches. The frame is entirely made of brass tube, and above the cistern is of about 1·1 inch in diameter. The first ten inches of the lower end are occupied by a thermometer, whose bulb, bent inwards, is concealed within the frame. At about three inches

higher, it is attached to the stand by a ring, in which the frames turn round with a smooth and steady motion, for the purpose of placing the instrument in the best light for reading off, &c. The actually divided scale commences at about fifteen inches above the zero, and is continued as high as thirty-three inches; and, by the usual help of a vernier, is subdivided down to ·001 of an inch. A longitudinal slit, from end to end of the divided part, exposes to view the glass tube and mercury within it. The whole of this part consists of two tubes of brass: in the inside of the interior one, slides a cylindrical piece, and on this is divided the vernier scale, the index to which is the lower end of the piece. In taking the height of the mercury, this piece is brought down so as just to exclude the light from passing between itself and the spherical surface of the mercury. The screw at top, although but a short one, performs this office in whatever part of the scale the vernier piece may be; for it acts upon the interior long tube, in the inside of which the piece is sustained by friction, and in which it is, on every occasion, to be set by hand nearly. The tripod is altogether similar to what Mr. Ramsden used for the same purpose, as far back as the year 1775. It affords when closed, fig. 15, a safe and convenient packing-case for the instrument: the structure of the staff head is curious: the principal part is a circle fig. 16, about ·75 of an inch broad, joined in three pieces; these, although they seem in principle to be incapable of motion, yet, in practice, produce what is fully adequate to the purpose. The three joint-pins extend inwards, so as to pass through a circular rim, which they hold fast; within this rim is hung a similar one, by two pivots; and, inside the latter, at right angles to the pivots, are fastened two *y*'s, or angles, in which the barometer hangs by its gudgeons. Thus are brought about, in a small compass, the means of extending the legs, of turning the instrument about in the tripod, and an universal joint, whereon it readily places itself perpendicular to the horizon.

The importance of these instruments at sea, where every real indication of the approaching weather must be important, early suggested a Marine Barometer, first invented by Dr. Hooke. It is contrived so as not to be affected or injured by the motion of a ship. His contrivance consisted of a double thermometer, or a couple of tubes half filled with spirit of wine; the one sealed at both ends, with a quantity of air included; the other sealed at one end only. The former of these is affected only by the warmth of the air; but the other is affected both by the external warmth and by the variable pressure of the atmosphere. Hence, considering the spirit thermometer as a standard, the excess of the rise or fall of the other above it will show the increase or decrease of the pressure of the atmosphere. This instrument is described by Dr. Halley, in the Phil. Trans. No. 269, where he says, 'I had one of these barometers with me in my late southern voyage, and it never failed to prognosticate and give early notice of all the bad weather we had, so that I depended thereon, and made provision accordingly; and from my own experience I conclude, that a more useful contrivance hath not for this long time been offered for the benefit of navigation.' Mr. Nairne, an artist of London, invented another kind of Marine Barometer, having the lower part of the tube, for about two feet long, made very small, to check the vibrations of the mercury, which would otherwise arise from the motions of the ship. This was also assisted by being hung in gimbals, by a part which subjects it to be the least affected by such motions. It was constructed for the use of Captain Phipps in his celebrated voyage to the North Pole. A marine barometer has also been invented by M. Passemente, an ingenious artist of Paris. This contrivance consists only in twisting the middle of the tube into a spiral of two revolutions; by which contrivance the impulses which the mercury receives from the motions of the ship are destroyed, by being transmitted in contrary directions.

Troughton's Marine Barometer may be considered the best, perhaps, at present known. The upper part of the tube here is four-tenths of an inch diameter, and the smaller part only one-fiftieth; and, to counteract more effectually the effects of the ship's motion, the instrument, like the above, is suspended in gimbals, as shown in figs. 17 and 18. The whole is attached to the side of the cabin by two brass tubes, which slide one within the other, and render the instrument capable of being suspended at different distances from the place of support; that the bottom of it may not strike the side of the cabin during any heavy rolling of the vessel, the inner tube carries the gimbal. The external frame of the barometer is a cylindrical tube of wood, on which the brass sockets slide; and in this is inserted the innermost pair of pivots, or universal joint, which furnishes the instrument with a movable point of suspension. The top is terminated with a brass ball, of a weight nearly equal to that of the mercury, &c. at the lower end. With respect to the position of the point of suspension, no general rule can be given applicable to every case, though it is a circumstance on which the oscillations of the mercury greatly depends; it is indeed obvious, that, though this point were accurately determined for one particular height of the mercury, it would not correspond with every other. By this ingenious contrivance of the counterpoise to the weight of the mercury, the centre of gravity of the whole will be about the middle; and if the instrument were of the same specific gravity throughout, the point of suspension that would produce the smallest oscillation, would be about one-third of the length of the instrument from the top, considering the lower part as a fixed point; but as this is not strictly the case, the point of suspension is best ascertained by experiment. The graduation is on two scales of ivory, about four inches long, for the reception of which two opposite quarters of the cylindrical frame are sunk through that length, their planes pointing towards the centre of the tube, and the index is very light, and slides on the glass tube, without touching any other part. At the bottom is the usual screw, which, pressing up the leather bag, prevents the mercury from oscillating when the instrument is removed. For an instrument of this kind, lately invented by Mr. Adie, see Symplesometer.

Among barometers, or baroscopes, might be ranked a weather instrument to ascertain the variation of the atmosphere, by the sound of a wire, mentioned by M. Lazowski in his Tour through Switzerland, and discovered by accident. A clergyman, who was near-sighted, often amused himself with firing at a mark, and contrived to stretch a wire so as to draw the mark to him to see how he had aimed. He observed that the wire sometimes sounded as if it vibrated like a musical chord; and that after such soundings a change always ensued in the state of the atmosphere; from whence he came to predict rain or fine weather. On making farther experiments, it was found that the sounds were most distinct when extended in the plane of the meridian. According to the weather which was to follow, the sounds were more or less soft, or more or less continued. Fine weather was announced by the tones of counter-tenor, and rain by those of bass. It has been said that M. Volta mounted fifteen chords in this way at Pavia, to bring this method to some precision, but no accounts have appeared of his success.

Marine barometers are now generally used on board all ships of war and Indiamen. To facilitate the keeping of a register of barometrical observations, Mr. Horsburgh, hydrographer to the East India Company, has lately published a set of engraved ruled sheets, adapted for the convenience of navigators. In these plates the height of the mercury, from twenty-seven to thirty-one inches, is represented in inches and tenth parts, by horizontal lines; while each successive day has a space apportioned to it by vertical bars. The state of the barometer at every observation is marked with a dot; and these dots being afterwards connected together, exhibit an irregular waved line, stretching across the sheet, and indicating the series of the changes of the weather. At the lowest points, from which the curve again returns, a gale generally follows. From the observations made off the Cape of Good Hope, during the month of May 1815, by Captain Basil Hall, of his Majesty's sloop Victor, it appears that whenever the mercury fell to 29·60 inches, a storm always ensued; the column always rose when the gale abated, and when it reached near thirty inches, the weather became fair. Those gales often came on suddenly, without any visible change in the aspect of the sky, but the marine barometer never failed to give warning of their approach.

The following observations, upon the movements and state of the mercury in the marine barometer, were made by Captain Flinders, of his majesty's ship Investigator, during his examination of the coasts of New Holland and New South Wales, the Terra Australis of the earlier charts, in the years of 1801, 1802, and 1803. Phil. Trans. 1806, Part. 2. The barometer, with which these observations were made, was constructed by Nairne and Blunt, and had been used in Captain Cook's voyages. The height of the mercury was taken regularly at day-break, at noon, and at eight o'clock in the evening. The temperature of the thermometer was also registered at the same periods. The circumstances that led Captain Flinders to think his observations worth attention were, the coincidence that took place between the rising and falling of the mercury, and the setting in of wind that blew from the sea and from off the land, to which there seemed to be at least as much reference as to the strength of the wind, or the state of the atmosphere. Among the examples selected from the captain's journals, are nine that relate to the south coast; from these it appears, generally, that a change of wind from the northern, to any point in the southern half of the compass, caused the mercury to rise, and a contrary change, to fall; and that the mercury stood considerably higher when the wind was from the south side of east and west, than it did in similar weather when the wind came from the north side. The cause of this appears to be, that the first proportion of air brought in from the sea, is impelled upwards by the land which it encounters, and along the inclined surface of the land, in a sloping direction: the next portion is, in the same manner, stopped and forced upwards; but it has a shorter space to pass through, because the former portion goes along two of the sides, and the latter along the third side of an obtuse-angled triangle: thus, the succeeding portions of air meet the summit of land before the first portions, and cause the latter to eddy and stagnate; while the stream blowing above this portion, compresses it, and augments its density, whence the increased height of the barometer.

'The barometer,' says Captain Flinders, 'was of great service to me in the investigation of this dangerous part of the east coast, where the ship was commonly surrounded with rocks, shoals, islands, or coral reefs. Near the main land, if the sea-breeze was dying off at night, and the mercury descending, I made no scruple of anchoring near the shore, knowing that it would either be a calm, or a wind would come off from the land; but if the mercury kept up, I stretched off, in the expectation that it would freshen up again in a few hours. Amongst the barrier-reefs, when the wind was dying away, the barometer told me, almost certainly, from what quarter it would next spring up. If the mercury stood at 30° 15′ or near it, and was rising, I expected the proper trade wind; and if higher, that it would be well from the southward, or would blow fresh; and, if it was up to 30° 30′ both. The falling of the mercury to 30° 10′ was an indication of a breeze from the north-eastward; and its descent below thirty inches, that it would spring up, or shift round to the westward.' Hence, it appears, that this skilful commander navigated his vessel throughout those dangerous parts of the eastern coast that are between the latitudes of 23° and 17°, pursuant to a confident deduction from his own theory.

Dr. Halley's Rules for judging of the weather by Barometers.—I. In calm weather, when the air is inclined to rain, the mercury is commonly low. II. In serene, good, and settled weather, the mercury is generally high. III. Upon very great winds, though they be not accompanied with great rain, the mercury sinks lowest of all, according to the point of the compass the wind blows from. IV. The greatest heights of the mercury are found upon easterly or north-easterly winds, other circumstances alike. V. In calm frosty weather, the mercury commonly

stands high. VI. After very great storms of wind, when the mercury has been very low, it generally rises again very fast. VII. The more northerly places have greater alterations of the barometer than the more southerly, near the equator. VIII. Within the tropics, and near them, there is little or no variation of the barometer, in all weathers. For instance, at St. Helena it is little or nothing, at Jamaica three-tenths of an inch, and at Naples the variation hardly ever exceeds an inch; whereas in England it amounts to two inches and a half, and at Petersburgh to 3½ nearly.

Mr. Rowning justly remarks, that it is not so much the absolute height of the mercury in the tube that indicates the weather, as its motion up and down, and therefore, to pass a right judgment of what weather is to be expected, we ought to know whether the mercury is actually rising or falling; to which end the following rules are of use. I. If the surface of the mercury is convex, standing higher in the middle of the tube than at the sides, it is a sign that the mercury is then rising. II. But if the surface is concave, or hollow in the middle, it is then sinking. And, III. If it be plain, or rather a very little convex, the mercury is stationary; for mercury being put into a glass tube, especially a small one, naturally has its surface a little convex, because the particles of mercury attract one another more forcibly than they are attracted by glass. IV. If the glass be small, shake the tube; then if the air be grown heavier, the mercury will rise about half a tenth of an inch higher than it stood before; but if it be grown lighter, it will sink as much. And, it may be added, in the wheel or circular barometer, tap the instrument gently with the finger, and the index will visibly start forwards or backwards according to the tendency to rise or fall at that time. This proceeds from the mercury's sticking to the sides of the tube, which prevents the free motion of it till it be disengaged by the shock; and therefore, when an observation is to be made with such a tube, it ought to be first shaken; for sometimes the mercury will not vary of its own accord, till the weather is present which it ought to have indicated.

Variations of the Barometer. Several members of a German meteorogical society have registered observations upon the barometer. The most noted of those observers are, Steilehner, Planer, Chiminello, and Hemmer.

The first of these gentlemen says, that he found, by several comparative observations, that the greatest fall of the barometer does not happen in very remote places at the same time; but that it is earlier towards the west, and later towards the east; and that the difference of the time is nearly equal to the difference of the meridians of the places; an assertion which deserves to be accurately examined.

M. Planer observed the barometer for a whole year, six times every day, viz. at two, six, and ten o'clock in the morning, and at the same hours in the afternoon; and found, in general, that the barometer, between ten in the morning and two in the afternoon, and between ten at night and two in the morning, was less in its rising, and greater in its fall; and that the contrary was the case between the hours of six and ten in the evening and morning.

Chiminello observed the barometer twenty-two times a day, for three years, but he left a chasm in the night, which he supplied by calculation. The principal positions which he then deduced are, that the barometer falls towards noon, as well as towards midnight.

Hemmer deduced the three following general rules from a great number of accurate observations: 1. When the sun passes the meridian, the barometer, if in the act of falling, continues to fall, and the falling is accelerated. 2. When the sun passes the meridian, the barometer, if in the act of rising, falls, or becomes stationary, or rises more slowly. 3. When the sun passes the meridian, the barometer, which is stationary, falls, if it has not risen before or after being stationary; in which case it usually becomes stationary during the sun's passage.

From a register kept by a Mr. Dunbar, near the banks of the Mississippi, in N. lat. 31° 28′, we find that, for the space of about four days before, and six days after, the summer solstice, the barometer regularly rises from nine P. M. to about six A. M. then falls till the return of the former hour in the evening, then rises again as before, &c. in alternate periods. In the first four days the direction is ascending, and the elevation of a line drawn through the mean is about $\frac{6}{100}$ of an inch. In the latter six days the mean line is perfectly horizontal, the elevation each night amounting to $\frac{7}{100}$, and the depression each day to the same, but occupying double time.

The celebrated Humboldt made some interesting observations at Caraccas, in South America, near the equator. There are, he says, four atmospherical tides every twenty-four hours, which depend only on the attraction of the sun. The mercury falls from nine in the morning to four in the evening: it rises from four to eleven o'clock: it falls from eleven o'clock till past four in the morning: and it re-ascends from that time till nine o'clock. Neither winds, storms, nor earthquakes, have any influence on this motion.

Horsburgh, in his last voyage to Bombay, employed two marine barometers, one made by Troughton, and the other by Ramsden; with which he made very minute observations; which were published in the second part of the Phil. Trans. for 1805; and in the Hist. Roy. Soc. Edin. of the same year, we have a comparison of the diurnal variations of the barometer, made in Peyrouse's voyage round the world, with those made at Calcutta, by Dr. Balfour.

The agreement between these observations seems very remarkable. Dr. Balfour found that, during the whole lunation, in which he observed the barometer from half hour to half hour, the mercury constantly fell from ten at night to six in the morning; from six to ten in the morning it rose; from ten in the morning to six at night it fell again; and, lastly, rose from six to ten at night. The maximum height is, therefore, at ten at night and ten in the morning; and the minimum at six at night and six in the morning. The only difference is, that in M. Lamanon's observations, the minimum is stated to have happened at about four instead of six. This, how-

ever, will not seem a very material difference, when it is remembered, that the instant when any quantity attains either its greatest or its least state is not easily ascertained with precision. From the observations, as detailed by M. Lamanon, the time of the minimum seems to answer fully as well to five as to four; so that the difference of the results is in every view inconsiderable, and their coincidence on the whole not a little singular. The variation in Dr. Balfour's barometer between the nearest maximum and minimum is sometimes about $\frac{1}{10}$ of an inch, though, in general, considerably less.

Many hypotheses have been advanced to explain the cause of the variations of the barometer. The various and often imaginary effects of vapors of heat and winds have been employed in framing an explication of the changes of the atmosphere. The fact that the mercurial column generally falls before rain, seemed at complete variance with the intimation of the senses; it being a notion universally prevalent, that the air is heavier when the sky appears lowering and overcast; another proof, if it were wanted, how fallacious are all current opinions in matters of science.

Leibnitz endeavoured, by a sort of metaphysical argument, to demonstrate that, though a body adds its own weight to the pressure of a fluid in which it is suspended, yet it will cease to be ponderous in the act of falling. This alleged principle will not, in the actual state of science, be thought to require any serious refutation. Dr. Halley thought the winds and exhalations sufficient to account for these variations; and on this principle gives a theory, the substance of which may be comprised in what follows: 1st That the winds must alter the weight of the air in any particular country; and this, either by bringing together a greater quantity of air, and so loading the atmosphere of any place, which will be the case as often as two winds blow from opposite parts, at the same time, towards the same point; or by sweeping away some part of the air, and giving room for the atmosphere to expand itself, which will happen when two winds blow opposite ways from the same point at the same time: or lastly, by cutting off the perpendicular pressure of the air, which is the case when a single wind blows briskly any way; it being found by experience, that a strong blast of wind, even made by art, will render the atmosphere lighter: and hence the mercury in a tube below it, as well as in others more distant, will considerably subside. See Phil. Trans. No. 292. 2dly, That the cold nitrous particles, and even the air itself condensed in the northern regions, and driven elsewhere, must load the atmosphere, and increase its pressure. 3dly, That heavy dry exhalations from the earth must increase the weight of the atmosphere, as well as its elastic force: as we find the specific gravity of menstruums increased by salts and metals dissolved in them. 4thly, That the air being rendered heavier by these and the like causes, is thence better able to support the vapors; which being likewise intimately mixed with it, make the weather serene and fair. Again the air being made lighter from the contrary causes, it becomes unable to support the vapors with which it is replete; these therefore precipitating, are collected into clouds, the particles of which in their progress unite into drops of rain. Hence he infers, that the same causes which increase the weight of the air, and render it more able to support the mercury in the barometer, likewise produce a serene sky, and a dry season; and that the same causes which render the air lighter, and less able to support the mercury, likewise generate clouds and rain.

Dr. James Hutton, in his Theory of Rain, printed in the Transactions of the Royal Society of Edinburgh, vol. 1, gives ingenious and plausible reasons for thinking that the lessening the weight of the atmosphere by the fall of rain, is not the cause of the fall of the barometer, but that the principal, if not the only cause, arises from the commotions in the atmosphere, which are chiefly produced by sudden changes of heat and cold in the air. The barometer, says he, is an instrument necessarily connected with motions in the atmosphere; but it is not equally affected with every motion in that fluid body. The barometer is chiefly affected by those motions by which they are produced, accumulations and abstractions of this fluid, in places or regions of sufficient extent to affect the pressure of the atmosphere upon the surface of the earth. But as every commotion in the atmosphere may, under proper conditions, be a cause for rain, and as the want of commotion in the atmosphere is naturally a cause of fair weather, this instrument may be made of great importance for the purpose of meteorological observations, although not in the certain and more simple manner in which it has been with the increase of science, so successfully applied to the measuring of heights. See Rain.

Hauksbee's celebrated experiment has been quoted as confirming the theory of Dr. Halley. That ingenious experimentalist, about the year 1704, placed two barometers, about three feet asunder, with their naked cisterns in two close square wooden boxes, connected by a horizontal brass pipe; one of these boxes had, inserted at right angles, an open pipe on the one side, and a second pipe, terminating in a screw, on the other side; to this end he adapted a strong globular receiver of about a foot in diameter, which had been charged, by injection from a syringe, with three or four atmospheres; then suddenly opening the stop-cock, and giving vent for the escape of the air through the box and over the surface of the included cistern the mercury sunk equally in both barometers more than two inches. This experiment might be deemed entirely conclusive, if a minute circumstance, on which its success depends, had not unfortunately been overlooked. It will be perceived from the inspection of the figure which Hauksbee has given, that the exit pipe of the box was considerably wider than the pipe which conveyed into it the stream of air. This fluid, escaping from compression, would, therefore, be carried by its elasticity as much beyond the state of equilibrium; while the width of the orifice, by facilitating its emission, would allow the portion occupying the box and the connected reservoir to preserve its acquired expansion. If the pipe of discharge from the box had been much

narrower than the other, an opposite effect must have taken place; for the air accumulated over the cistern, not finding a ready vent, would remain in a state of condensation. This fact is a remarkable indication of the great delicacy required in performing such experiments.

The same result, however, can be exhibited by a very simple apparatus. Let a small box, or rather a glass ball, have a short narrow tube inserted in the one side, and another wide tube opposite to this, with a cross slider of brass, for contracting the orifice at pleasure; and, to the under part of the ball, join a long perpendicular tube, bent back like a syphon to more than half its height and containing a double column of water. Now, blow through the narrow tube into the cavity of the ball, while the orifice of emission is quite opened, and the liquor will rise several inches in a long stem; but, still continuing the blast, let the orifice be gradually contracted, and the column will first descend to its ordinary level, and then sink considerably below it.

It is clear that the fall and rise of the mercury in the barometer must evidently be occasioned by some corresponding reduction or accumulation of the atmosphere at the place of observation. Whatever augments the elasticity of the air will cause part of the incumbent fluid to evade and leave for the time a diminished vertical pressure. The efflux of wind might also produce a temporary reduction of the atmospheric column. But the real difficulty consists in explaining why the variations of the barometer should be greater in the high latitudes than between the tropics, and why they so much exceed in all cases the quantities which calculation might assign. On the whole, the present state of physical science presents nothing but a series of conjectures on this subject. The augmented elasticity communicated to the air by the action of heat or the presence of humidity, and the reduction of the incumbent mass by the efflux of winds, have doubtless each their distinct influence, in disturbing the equilibrium of the atmospheric ocean. But the effects, particularly in the high latitudes, much surpass the regular operation of those causes. The only mode, perhaps, of removing the difficulty, is to take into consideration the comparative slowness with which any force is propagated through the vast body of atmosphere. An inequality may continue to accumulate in one spot, before the counterbalancing influence of the distant portions of the aërial fluid can arrive to modify the result. In the higher latitudes, the narrow circle of air may be considered as, in some measure, insulated from the expanded ocean of atmosphere, and hence, perhaps, the variations of the barometer are concentrated there, and swelled beyond the due proportion.

The use and application of barometers in measuring altitudes, has of late attracted more of the attention of philosophers than their faculty of indicating the weather. As before observed, this use of the instrument was first proposed by Pascal and Descartes. Succeeding philosophers have been at great pains to ascertain the proportion between the fall of the barometer and the height to which it is carried; as Halley, Mariotte, Maraldi, Scheuchzer, J. Cassini, D. Bernoulli, Horrebow, Bouguer, Shuckburgh, Roy, and more especially De Luc, who has given a critical and historical detail of most of the attempts, that have at different times been made, for applying the motion of the mercury in the barometer to the measurement of accessible heights. We have noticed the researches of Dr. Halley and De Luc, who introduced the corrections of the columns of mercury and air, on account of heat. The following rules for computing heights (the principles of which the reader will find explained under PNEUMATICS,) are given by Dr. Maskelyne, in his Introduction to Taylor's Tables of Logarithms. The altitudes of the barometer at two stations, with the heights of Fahrenheit's thermometer attached to the barometer, and the heights of two thermometers of the same kind, exposed to the air but sheltered from the sun, at the two stations being given, to find the perpendicular altitude of the one station above the other?—Put B for the observed height of the barometer at the lower station, and b for that at the upper station, D for the difference of heights of Fahrenheit's thermometer attached to the barometer at the two stations, and F for the mean of the two heights of Fahrenheit's thermometer, exposed freely for a few minutes to the open air, in the shade at the two stations. The altitudes of the upper station above the lower, in English fathoms, will be expressed as follows, according to the respective observations of M. de Luc, the late General Roy, and Sir George Shuckburgh, in which the upper sign — is to be used when the thermometer attached to the barometer is highest at the lower station, (which is most usual,) and the lower sign + when it is lowest at the lower station.

M. De Luc . . . . . $\text{Log. B} - \text{Log. } b \mp 0{\cdot}452\,\text{D} \times 1 + \overline{\text{F} - 40^\circ} \times 0{\cdot}00223.$

General Roy . . . . $\text{Log. B} - \text{Log. } b \mp 00{\cdot}468\,\text{D} \times 1 + \overline{\text{F} - 32^\circ} \times 0{\cdot}00245.$

Sir G. Shuckburgh . . $\text{Log. B} - \text{Log. } b \mp 0{\cdot}440\,\text{D} \times 1 + \overline{\text{F} - 32^\circ} \times 0{\cdot}00243.$

Mean of the two last . $\text{Log. B} - \text{Log. } b \mp 0{\cdot}454\,\text{D} \times 1 + \overline{\text{F} - 32^\circ} \times 0{\cdot}00244.$

The observations of General Roy and Sir George Shuckburgh having been made with barometers and thermometers constructed and accurately divided by Mr. Ramsden, and with the detached thermometers never exposed to the sun, appear clearly to deserve the preference above those of

M. de Luc. The last of the above rules, which is a mean between those of General Roy and Sir George Shuckburgh, may be expressed in words at length, as follows: take the difference of the tabular logarithms of the observed heights of the barometer at the two stations, considering the four first figures, exclusive of the index, as whole numbers, and the remaining figures to the right as decimals, and subtract or add $\frac{454}{1000}$ of the difference of altitude of Fahrenheit's thermometer, attached to the barometer at the two stations, according as it was highest at the lower or upper station; thus the height of the upper station above the lower in English fathoms, will be found nearly; to be corrected as follows:—Multiply the height found nearly by the difference between the mean of the two altitudes of Fahrenheit's thermometer exposed to the air of the two stations and 32°, and by the decimal fraction 0·00244; the product will be the correction of the approximate height, which added to, or subtracted from the same, according as the mean of the two altitudes of Fahrenheit's thermometer exposed to the air was higher or lower than 32°, will give the true height of the upper station above the lower in English fathoms; which multiplied by 6, will give the true height in English feet.

Example. Let the state of the barometers and thermometers be as follows, to find the altitude.

Thermometers.		Barometers.
Detached.	Attached.	
57	57	29·68 lower.
42	43	25·28 upper
Mean 49½	Diff. 14	

Heights.	Log.
29·68	4724·639
25·28	4027·771
from	696·868
Subtract $\frac{454}{1000} \times 14 =$	6·356
Height nearly =	690·512
Multiply by 49½—32 =	17½
Height nearly =	690·512
Product =	21083·960
Multiply by	·00244
Correction =	29·485
Height nearly =	690·512
Correct height in fathoms =	719·997

Professor Playfair, in a learned paper, printed in the first volume of the Transactions of the Royal Society of Edinburgh, has examined all the circumstances which can affect barometrical measurements, with his usual correctness and perspicuity. La Place resumed the subject in his Mecanique Celeste, and brought all the conditions together in a very complicated formula, to which we have before alluded. Such an appearance of extreme accuracy, however, is perhaps to be regarded rather as a theoretical illusion, than a view of results founded on the real state of practice. Biot also, in attempting to arrive at a similar conclusion, confines himself to the same remark. He sets out à priori from some careful experiments on the relative density of air and mercury, performed by him in conjunction with Arago. He thence infers, that in the latitude of Paris, and at the point of congelation, air, under a mercurial pressure of 76 metres, or 29·922 English inches, is 10,463 times lighter than mercury at the temperature of water at its lowest contraction. This would give 26·090 feet for the height of a column of homogeneous fluid, whose pressure is equivalent to the elasticity of the atmosphere. The coefficient adapted to common logarithms, and adjusted to the force of attraction at the level of the sea, would therefore be 60,148 feet, or 18,334 metres; scarcely differing sensibly from the quantity which Ramond had deduced from a very numerous set of experiments made by him on the Pyrenees. But Biot prefers, as the coefficient, the number 18,993, answering for an elevation of 1200 metres, or about 4000 feet above the sea, which is not far from the general level of such observations. The formula is hence, in English feet,

$$60{,}346\ (1+\cdot002837\cos.\ 2\psi)\left(1+\frac{2(T+t)}{1000}\right)\log.\frac{H}{h};$$

where ψ denotes the latitude of the place, T and t the temperatures of the air at the two stations, as indicated by the centesimal thermometer, and H and h the heights of mercurial columns corrected for the effects of heat.

This writer has likewise given tables for expediting the calculation of barometrical measurements; in which he was anticipated, however, by Oltmans of Berlin, who published, in 1809, large Hypsometrical Tables, as they are called, accommodated to the complex formula of La Place. Such tables might, no doubt, prove useful where very frequent computations are wanted, as in the case of the reduction of the numerous observations brought home by Baron Humboldt, for which, indeed, they were first designed. But still they contain a needless profusion of figures, and hold forth a show of extreme accuracy which the nature of the observations themselves can never justify. By barometrical admeasurements, principally scientific, travellers have of late years been able to form vertical sections of different countries, which contribute further to our knowledge of their geological character than any previous mode of delineation. Thus Humboldt, in his Geography of Plants, gives a section across the American continent, one of the best and most interesting that has yet appeared. It consists, in fact, of four combined sections, traversing through an extent of 425 miles. The line begins at Acapulco on the shore of the Pacific Ocean, and runs 195 miles, about a point of the compass towards the east of north, to the city of Mexico; then eighty miles, a point to the south of east, to La Puebla de los Angeles; again it holds a north-east direction of seventy miles, to the Cruz Blanca; and finally bends eighty miles east by south, to Vera Cruz, on the coast of the Atlantic. A scale of altitudes is annexed, which shows the vast elevation of the table-land at Mexico.

This mode of distant levelling has originated also a very interesting discovery, recently made by Engelhardt and Parrot, two Prussian travel-

rs, in another quarter of our globe; they proeeded, on the 13th of July, 1814, from the nouth of the Kuban, at the island of Taman, on he Black Sea; and, examining carefully every lay the state of the barometer, they advanced vith fifty-one observations, the distance of 990 ersts, or 711 English miles, to the mouth of the Terek, on the margin of the Caspian Sea. Similar observations were repeated and multiplied on their return. From a diligent comparison of he whole, it follows that the Caspian is 334 English feet below the level of the Black Sea. That the Caspian really occupies a lower level han the ocean, had been suspected before, from comparison of some registers of barometers kept t St. Petersburgh, and on the borders of that nland sea; but the last observation places the uestion beyond all doubt. It farther appears, hat within 250 versts, or 189 miles, of the Caspian, the country is already depressed to the level f the ocean, leaving, therefore, an immense asin, from which the waters are supposed to ave retired by a subterranean percolation.

We subjoin a table of the altitude of some of he most remarkable mountains, &c. on the earth bove the surface of the ocean:—

		Eng. feet.
Mount Puy de Dome in Auvergne, the first mountain measured by the barometer		5088
Mount Blanc	Alps	15662
Monte Rosa	Alps	15048
Aiguille d'Argentiere	Alps	13402
Monastery of St. Bernard	Alps	7944
Mount Cenis		9212
Pic de los Reyes	Pyrenees	7620
Pic du Midi	Pyrenees	9300
Pic d'Ossano	Pyrenees	11700
Canegou	Pyrenees	8544
Lake of Geneva		1232
Mount Ætna		10954
Mount Vesuvius		3938
Mount Hecla in Iceland		4887
Snowdon		3555
Ben Moir		3723
Ben Lawers		3858
Ben Gloe		3472
Schihallion		3461
Ben Lomond		3180
Cinto		2342
Table Hill, Cape of Good Hope		3454
Gondar, city in Abyssinia		8440
Source of the Nile		8082
Pic of Teneriffe		14026
Chimboraço		19595
Cayambouro		19391
Antisana		19290
Pichincha		15670
City of Quito		9977

The mean height of the barometer in London, upon an average of two observations in every day of the year, kept at the house of the Royal Society, for many years past, is 29·88; the medium temperature, or height of the thermometer, according to the same, being 58°. But the medium height at the surface of the sea, according to Sir George Shuckburgh, (Phil. Trans. 1777. p. 586.) is 30·04 inches, the heat of the thermometer being 55°, and of the air 62°.

BAROMETRICAL PHOSPHORUS. See PHOSPHORUS.

BA'RON, BA'RONAGE, BA'RONESS, BA'RONET, BA'RONIAL, BARONY. Fr. *baron*; Ital. *barone*; Sp. *baron*. See to BAR. *Bairgan*, to arm; to defend; to strengthen. The etymology of this word is very uncertain. *Baro*, among the Romans, signified a brave warrior, or a brutal man; and, from the first of these significations, Menage derives *baron*, as a term of military dignity.—Others suppose it originally to signify only a man, in which sense *baron* or *varon*, is still used by the Spaniards; and, to confirm this conjecture, our law yet uses *baron* and *femme*, husband and wife. Others deduce it from *ber*, an old Gaulish word, signifying commander; others from the Hebrew נבר, of the same import. Some think it a contraction of *par homme*, or *peer*, which seems least probable. Allowing the derivation to be from *bairgan*, which is the suggestion of Tooke, then the simple idea of *baron* is a man of power, armed and surrounded with abundant means of defence. This generally implies rank; and *baron* is a title of nobility, it is likewise a name of office.

When loue has told herr his extent
The *baronage* to counsaile went,
In many sentences they fill,
And diuersly they saied her will.
Chaucer. Romaunt of the Rose.

My lord, I'll tell you what,—
If my young lord, your son, have not the day,
Upon mine honour for a silken point
I'll give my *barony*. *Shakspeare.*

Where throngs of knights and *barons* bold
In weeds of peace high triumph hold,
With store of ladies, whose bright eyes
Rain influence, and judge the prize
Of wit or arms, while both contend
To win her grace whom all commend. *Milton.*

Sir Edward Walker, garter and secretary of war to King Charles the First, observes, 'That in all Queen Elizabeth's forty-four years reign, she created but six earls and eight or nine *barons*.'
Oldys' Life of Sir Walter Raleigh.

The second was the *baronage*, the nobility and gentry who held their *baronies* of the king, and the third was the boroughs, who held of the king by *barony*, though in a community; so that the parliament was truly the *baronage* of the kingdom. The lesser *barons* grew weary of this attendance.
Burnet. History of his own Times.

Coffee (which makes the politician wise,
And see thro' all things with his half shut eyes)
Sent up in vapours to the *baron's* brain
New stratagems the radiant lock to gain. *Pope.*

Here might you see
Barons and peasants on the embattled field,
Slain or half dead, in one huge ghastly heap
Promiscuously amassed. *Philips's Cider*, b. ii.

The title of *baronet*, invented by Salisbury, was sold; and two hundred patents of that species of knighthood were disposed of for so many thousand pounds. *Hume. History of England. King James Ist.*

A *baron* is the most general and universal title of nobility; for originally every one of the peers of superior rank had also a *barony* annexed to his other titles. But it hath sometimes happened, that when an ancient *baron* hath been raised to a new degree of peerage, in the course of a few generations the two titles have descended differently. *Blackstone's Commentaries.*

Baron (Robert), a dramatic author, who lived during the reign of Charles I. and the protectorship of Oliver Cromwell. He was educated at Cambridge, after which he became a member of the society of Gray's Inn. During his residence at the university he wrote a novel, called the Cyprian Academy, in which he introduced the first two of the dramatic pieces mentioned below. The third of them is a much more regular and perfect play, and was probably written when the author had attained a riper age. Their names are, 1. Deorum Dona, a masque. 2. Gripus and Hegio, a pastoral. 3. Mirza, a tragedy. Mr. Baron was intimate with the celebrated Mr. James Howell, the traveller, in whose collection of letters there is one to this gentleman, vol. iii. let. 418, who was then at Paris. To Mr. Howell, and the ladies and gentlewomen of England, he dedicated his romance.

Baron. This title in ancient records was applied to all the nobility of England, because regularly all noblemen were barons, though they had also a higher dignity. But it has sometimes happened, that when an ancient baron has been raised to a new degree of peerage, in the course of a few generations the two titles have descended differently; one perhaps to the male descendants, the other to the heirs general; whereby the earldom or other superior title has subsisted without a barony: and there are also modern instances, where earls and viscounts have been created without annexing a barony to their other honors: so that now the rule does not hold universally that all peers are barons. The origin and antiquity of barons has occasioned great enquiries among antiquaries. The most probable opinion is, that they were the same with our present lords of manors. It is said the original name of this dignity in England was vavassour, which by the Saxons was changed into thane, and by the Normans into baron. It may be collected from king John's magna charta, that originally all lords of manors, or barons, had seats in the great council of parliament; but such is the deficiency of public records, that the first precept to be found is of no higher date than the 49 Henry III. which, although it was issued out in the king's name, was neither by his authority nor by his direction: for the king himself, his son prince Edward, and most of the nobility who stood loyal to him, were then prisoners in the hands of the rebellious barons; having been taken in May preceding, at the battle of Lewes, and so continued until the battle of Evesham, in August the year following; when, by the escape of prince Edward, he rescued the king and his adherents out of the hands of Simon Mountford, Earl of Leicester. It cannot be doubted, but that several parliaments were held by Henry III. and Edward I. yet no record is to be found, giving any account of them, except the fifth of Edward I. until the twenty-second year of that king's reign.

Before the 49 Henry III. the ancient parliaments consisted of the archbishops, bishops, abbots, earls, and barons. Of these barons there were two sorts; the greater barons, or the king's chief tenants, who held of him in capite by barony; and the lesser barons, who held of the first by military service in capite. The former had summons to parliament by several writs; and the latter (i. e. all those who were possessed of thirteen knight's fees and a quarter) had a general summons from the sheriff in each county. Thus things continued till the 49 Henry III. when, instead of keeping to the old form, the prevailing powers thought fit to summon, not all, but only those of the greater barons who were of their party; and, instead of the lesser barons who came with large retinues, to send their precepts to the sheriff of each county to cause two knights in every shire to be chosen, and one or two burgesses for each borough, to represent the body of the people residing in those counties and boroughs; which gave rise to the separation into two houses of parliament. By degrees the title came to be confined to the greater barons, or lords of parliament only; and there were no other barons among the peerage but such as were summoned by writ, in respect of the tenure of their lands or baronies, till Richard II. first made it a mere title of honor, by conferring it on divers persons by his letters patent.

Barons by ancient tenure, were those who held certain territories of the king, who still reserved the tenure in chief to himself. We also read of barons by temporal tenure; who are such as hold honors, castles, manors, as heads of their barony, that is, by grand serjeantry; by which tenure they were anciently summoned to parliament. But at present a baron by tenure is no lord of parliament, till he be called thither by writ. The barons by tenure, after the conquest, were divided into majores and minores, and were summoned accordingly to parliament; the majores, or greater barons, by immediate writ from the king; the minores, or lesser barons, by general writ from the high sheriff, at the king's command. Anciently they distinguished the greater barons from the less, by attributing high, and even sovereign jurisdiction, to the former, and only inferior jurisdiction over smaller matters to the latter.

When a baron is called up to the house of peers by writ of summons, the writ is in the king's name, and he is directed to come to the parliament appointed to be held at a certain time and place, and there to treat and advise with his majesty, the prelates, and nobility, about the weighty affairs of the nation. The ceremony of his admission into the house of peers is this. He is brought into the house between two barons who conduct him to the Lord Chancellor, his patent or writ of summons being carried by a king-at-arms, who presents it kneeling to the Chancellor, who reads it, and then congratulates him on his becoming a member of the house of peers, and invests him with his parliamentary robe. The patent is then delivered to the clerk of the parliament, and the oaths are administered to the new peer, who is conducted to his seat in the barons' bench. Some barons hold their seats by tenure. The coronation robes of a baron are the same as an earl's, except that he has only two rows of spots on each shoulder. In like manner his parliamentary robes have two guards of white fur, with rows of gold lace

In other respects they are the same with those of other peers.

A Baron's coronet, in heraldry, is a gold circle, on which are six pearls, which were assigned to barons by king Charles II. after the Restoration. Previously to this time the barons wore scarlet caps, turned up with ermine, and on the top a tassel of gold. Though called pearls, the globes round the coronet are always made of silver. His cap is the same as a viscount's. His style is Right Honourable; and he is addressed by the king or queen, Right Trusty and Well Beloved. See Barony.

Baron and Femme, in English law, husband and wife. They are deemed but one person; so that a wife cannot be witness for or against her husband, nor he for or against his wife, except in cases of high treason.

Baron and Femme, in heraldry, is when the coats of arms of a man and his wife are borne par pale in the same escutcheon, the man's being always on the dexter side, and the woman's on the sinister; but here the woman is supposed not an heiress, for then her coat must be borne by the husband on an escutcheon of pretence.

Baron, Lord Chief, the president of the court of Exchequer.

Barons of the Cinque-Ports, are members of the house of commons, elected by the five ports, two for each port. Those who have been mayors of Corfe-castle, in Devonshire, are likewise styled barons; and formerly the principal citizens of London were honored with the title of baron. See Cinque-Ports.

Barons of the Exchequer, four judges in England, and five in Scotland, to whom the administration of justice is committed, in causes between the king and his subjects, relating to matters concerning the revenue. They were formerly barons of the realm, but of late are generally persons learned in the laws. Their office is also to look into the accounts of the king, for which reason they have auditors under them. See Exchequer.

BARONAGIUM. See Barony.

Baronets of England. The dignity of baronet is given by patent. The order was founded by King James I. at the suggestion of Sir Robert Cotton, in 1611, when 200 baronets were created at once; to which number it was intended they should always be restrained: but is now enlarged at the king's pleasure, without limitation. They had several considerable privileges given them, with an habendam to them and their heirs male. They were allowed to charge their coat with the arms of Ulster, which are, in a field argent, a sinister hand, gules; and all upon condition of their defending the province of Ulster in Ireland against the rebels, who then harassed it extremely: to which end they were each to raise and keep up thirty soldiers, at their own expense, for three years together, or to pay into the exchequer a sum sufficient to do it; which, at eight-pence per day per head, was £1095. So that, including fees, the expense of this dignity may be about £1200 sterling. To be qualified for it, one must be a gentleman born, and have a clear estate of £1000 per annum. Baronets take place according to the dates of their patents; by the terms of which no honor is to be erected between barons and baronets. The title, Sir, is granted them by a peculiar clause in their patents, though they be not dubbed knights: but both a baronet and his eldest son, being of full age, may claim knighthood. The first English baronet was Sir Nicholas Bacon, of Redgrave, in Suffolk, whose successor is therefore styled primus baronetorum Angliæ. If a baronet be named at an installation as proxy for a knight of the Bath, it appears essential that he should be knighted for the occasion; thus Sir George Osborne, Bart. was knighted by king George III. A baronet takes precedence of all knights, except bannerets.

Baronets' mark; the arms of the province of Ulster, viz. argent, a hand, gules, in a canton, or in escutcheon, are borne by every baronet, as in the annexed example. 'He beareth, or, between two chevronels, three trefoils, slipped, sable,' as in the arms of the Abdy family.

Baronets of Ireland. In Ireland, an hereditary dignity somewhat similar to knighthood, appears to have been occasionally conferred in the earliest times; and the knights of Kerry and of Glyn are yet permitted to bear distinctions bestowed on their ancestors by the ancient sovereigns of the country. The order of baronets, however, was likewise instituted here by James I. in the eighteenth year of his reign, for the same purpose, and with the same privileges within the kingdom of Ireland as he had conferred on the like order in England; for which the Irish baronets paid the same fees into the treasury of Ireland. The first of that kingdom who was advanced to this hereditary dignity was Sir Francis Blundell, then secretary for the affairs of Ireland. Several more have been added, no number being limited; but since the union in 1801, none have been created otherwise than as baronets of the united kingdom.

Baronets of Nova Scotia, and Baronets of Scotland. The order of knights baronets was also designed to be established in Scotland in 1621, by James I. for the plantation and cultivation of the province of Nova Scotia, in America; but it was not actually instituted till the year 1625, by his son Charles I. when the first person dignified with this title was Sir Robert Gordon, of Gordonstone, a younger son of the Earl of Sutherland. The king granted a certain portion of land in Acadia or New Scotland, to each of them, which they were to hold of Sir William Alexander, afterwards Earl of Stirling, for their encouragement who should hazard their lives for the good and increase of that plantation, with precedency to them, and their heirs male for ever, before all knights called equites aurati, and all lesser barons called lairds, and all other gentlemen, except Sir William Alexander, his majesty's lieutenant in Nova Scotia, his heirs, their wives and children; that the title of Sir should be prefixed to their

Christian name, and Baronet added to their surname; and their own and their eldest sons' wives should enjoy the title of Lady, Madam, or Dame. His majesty was so desirous of adding every mark of dignity to this, his favorite order, that four years after its institution, he issued a royal warrant, granting them the privilege of wearing an orange ribbon and a medal: which last was presented to each of them by the king himself, according to the words of the warrant. All the privileges of the order, particularly this of wearing the medal, were confirmed at the king's request by the convention of estates in the year 1630; and, in order to establish them on the most solid foundation, they were again confirmed by an act of the parliament of Scotland in 1633. The premier baronet of Scotland, at present, is Sir Richard Strachan; and the number of the order, exclusive of such titles as are merged in peerages, is 135. Since the union the power of the king to create new baronets within Scotland is held to have ceased.

BARONI (Adriana), baroness of Piancaretta, in Mantua, an eminent singer, surnamed the fair, on account of her uncommon beauty. See next article.

Baroni (Leonora), and her mother, Adriana, were both distinguished for their extraordinary musical talents. Leonora was born at Naples, but spent the greatest part of her life at Rome. She had less beauty than her mother; but excelled her in profound skill in music, the fineness of her voice, and the delicacy of her manner. Mr. Bayle styles her one of the finest singers in the world; she was equally eminent as a composer, and was accordingly, as well as her mother, celebrated by the wits. In 1639 there was published, at Bracciano, a collection of Latin, Greek, Italian, Spanish, and French poems, in her praise, with this title, Applausi Poetici alle Glorie della Signora Leonora Baroni. Among the Latin poems of Milton there are three addressed, Ad Leonoram Romæ canentem, wherein this lady is celebrated for her singing, with an allusion to her mother's exquisite performance on the lute. A fine eulogium on her is contained in a discourse on the music of the Italians, printed with the life of Malherbe, and some other treatises at Paris, in 1672, in 12mo. It was composed by M. Maugars, prior of St. Peter de Mac, the king's English interpreter, who says, 'her singing threw me into such raptures, that I forgot my mortality, and thought myself among the angels, enjoying the felicity of the blessed!'

BARONIÆ Caput. See Caput.

BARONIS, a mountain of Chaus, in Barbary, three miles north of Fez. It produces red grapes, of which they make good wine, and is surrounded by villages.

BARONIUS (Cæsar), was born at Sora, in 1538, and studied at Rome, under Philip de Neri. In 1593 he was made general of the congregation of the Oratory, on the resignation of Philip de Neri, the founder. Pope Clement VIII. made him his confessor, and created him a cardinal in 1496. He was afterwards librarian to the Vatican; and died in 1605, at sixty-eight years of age. He wrote several works, the principal of which is his Annales Ecclesiastici, from A. D. 1 to 1198, in twelve vols. folio; which has been abridged by several persons, particularly by Henry Spondæus, Bzovius, and Ludovico Aurelio.

BARONSTOWN, a town of Ireland, in the county of Louth, six miles W.N.W. of Dundalk.

Barony, Baronia, or Baronagium, may be considered as a lordship, held by some service in chief of the king, coinciding with what is otherwise called grand serjeanty. Baronies, in their first creation, moved from the king himself, the chief lord of the whole realm, and could be holden of no other lord. For example, the king enfeoffed a man of a great seigneurie in land, to hold to the person enfeoffed and his heirs, of the king and his heirs, by baronial service; to wit, by the service of twenty, forty, sixty, knights, or of such other number of knights, as the king by his feoffment limited or appointed. In the ages next after the conquest, when a great lord was enfeoffed by the king of a large seigneurie, such seigneurie was called barony, but more commonly an honor; as, the honor of Gloucester, the honor of Wallingford, and the like. There were in England certain honors, which were called sometimes by English and sometimes by foreign names. This happened when the same person was lord of an honor in Normandy, or some other foreign country, and also of an honor in England. For example, William de Forz, de Force, or de Fortibus, was lord of the honor of Albemarle in Normandy: he was also lord of two honors in England; to wit, the honor of Holderness, and the honor of Skipton in Craven. These honors in England were sometimes called by the Norman name, the honor of Albemarle, or the honor of the earl of Albemarle. In like manner the earl of Britannie was lord of the honor of Britannie in France, and also of the honor of Richmond in England; the honor of Richmond was sometimes called by the foreign name, the honor of Britannie, or the honor of the Earl of Britannie. This serves to explain the terms honor Albemarliæ, or comitis Albemarliæ in Anglia; honor Britanniæ, or comitis Britanniæ in Anglia; not that Albemarle or Britannie were in England, but that the same person respectively was lord of each of the said honors abroad, and of each of the said honors in England. The baronies belonging to bishops are by some called regalia, as being held solely on the king's liberality. These do not consist in one barony alone, but in many; for tot erant baroniæ quot majora prædia. A barony, according to Bracton, is a right indivisible. Wherefore, if an inheritance be to be divided among co-partners, though some capital messuage may be divided, yet if the capital messuage be the head of a county or barony, it may not be parcelled: and the reason is, lest by this division many of the rights of counties and baronies by degrees come to nothing, to the prejudice of the realm, which is said to be composed of counties and baronies.

Barony of Glasgow. See Glasgow.

BAROPTIS, or Baroptinus lapis, among ancient naturalists, a species of stone, suppos-

to have wonderful virtues against venemous bites, externally applied. Pliny has left us but a very short description of it; he says, it was black in color, but variegated with large spots of red and white.

BAROS, or BARIOS, a sea-port of the island of Celebes, having a Dutch factory and settlement. There is a good trade here in opium. Long. 119° 15′ E., lat. 1° 24′ S.

BA'ROSCOPE, *n. s.* Βαρος and σκοπεω, an instrument to show the weight of the atmosphere. See BAROMETER.

If there was always a calm, the equilibrium could only be changed by the contents; where the winds are not variable, the alterations of the baroscope are very small. *Arbuthnot.*

BAROTH, a market-town of Transylvania, on the Aluta.

BARQUETTE, or BARCHETTA, denotes a lesser sort of barks, used in the Mediterranean, for the service of galleys, as boats and shallops are for other ships.

BARQUISIMETO, a city of South America, in the province of Venezuela, founded by the Spaniards in 1552. It is placed on an elevated plain, and enjoys great comparative coolness. The most constant and equal wind which prevails is the north-east, and, whenever the rays of the sun are not tempered by it, the thermometer of Fahrenheit rises to 82° and 84°. In the surrounding plains and hills excellent pasture encourages the rearing of all sorts of cattle. Many of the citizens prefer this speculation, and find it to their advantage, although at the same time they cultivate the sugar-cane and wheat. From freshness preserved by irrigation the vales produce cacao abundantly, and of a good quality; and the sides of the hills have lately been employed in the culture of coffee. There are in this place from 11,000 to 12,000 inhabitants, and the aspect of the city announces ease and affluence. The houses are well built; the streets straight, wide, and airy. The parish church is handsome, and served by two priests. The judicial and police duties are discharged by a common council and lieutenant. Barquisimeto is 20 miles W.S.W. of Caraccas, 450 N.N.E. of Santa Fé, and forty-five N.N.E. of Tocuyo.

BAR Dice, a species of false dice, so formed that they will not easily lie on certain sides, but turn up certain points. Bar dice stand opposed to flat dice, which come up on certain points rather than they should do.

BARR, or BARRA, a small kingdom of Africa. See BARRA.

BARR, ST. the tutelar saint of the island of Barray, which was named after him. His holiday is the 25th of September. On this day the priest says mass, and all those of the Romish religion used punctually to attend. See BARRY.

BARRA, a hill of Scotland in Aberdeenshire, in the parish of Bourtie, on the top of which are still distinctly visible the remains of an ancient camp, of a circular form, surrounded with ditches, and extending to near three acres.

BARRA, in commerce, a long measure used in Portugal and some parts of Spain, to measure woollen cloths, linen cloths, and serges. There are three kinds; the barra of Valencia, thirteen of which make twelve yards and six seventh English measure; the barra of Castile, seven of which make six yards and four sevenths; and the barra of Arragon, three of which make two yards and four sevenths English.

BARRA, in law. See BAR.

BARRA, a kingdom of the western coast of Africa, at the mouth of the Gambia, fourteen leagues in breadth, and eighteen long, according to Golberry. It contains a population of 200,000 souls, chiefly of the Mandingo race, zealous Mahommedans, and acute in commercial transactions. The capital is

BARRA INDING, where a considerable trade is carried on to Barraconda in maize, elephants' teeth, gold dust and cotton cloth. Every vessel entering the Gambia here pays a tax of about £20 sterling to the king of Barra.

BARRABA, or BARRADA, a tract of land in Siberia, lying between the rivers Irtisch and Oby, in the province of Tobolsk. It is uninhabited, but not through any deficiency of the soil; for that is excellent for tillage, and part of it might also be laid out in meadows and pastures. It is interspersed with a great number of lakes, which abound with carp, and the country produces great numbers of elks, deer, foxes, ermine, and squirrels. Between the Irtisch and Oby are some copper-mines.

BA'RRACAN, *n. s.* Fr. *bouracan*, or *barracan*, a strong thick kind of camelot.

BARRACAN, or BARRAGAN, is something like camlet but of a coarser grain. It is used to make cloaks, surtouts, &c. to keep off rain. Barracans are chiefly made in France, as at Valenciennes, Lisle, Abbeville, Amiens, and Rouen. Those of Valenciennes are the most valued.

BARRACIDA, in ichthyology, a species of pike. See ESOX.

BA'RRACK, *n. s.* Span. *barracca*. Little cabins made by the Spanish fishermen on the sea shore; or little lodges for soldiers in a camp. It is generally taken among us for buildings to lodge soldiers. It is not found in our early lexicographers. Perhaps from *barricado*, *barrique*. See BARRICADO.

Like ours it should wholly be composed of natural subjects; it ought only to be enlisted for a short and limited time; the soldiers also should live intermixed with the people; no separate camp, no *barracks*, no inland fortresses, should be allowed.
Blackstone, Commentaries.

Modern military men have always thought barracks very convenient, when there is sufficient room to make a large square, surrounded with buildings; because the soldiers are easily confined to their quarters, and the rooms being contiguous, orders are executed with privacy and expedition; and the troops have not the least connexion with the inhabitants of the place. This prevents quarrels and riots. Those for the horse were formerly called barracks, and those for the foot, huts; but now barrack is used indifferently for both.

Much opposition was made in parliament during the late war to the erection of barracks, as inimical to the liberties of Britain, by tending to estrange the soldiers from the citizens; thus rendering the former fit tools to enslave the latter,

should any future king or ministry wish to change the constitution, or compel the people to submit to unpopular and arbitrary measures. Plausible as these arguments may appear, there are others that have also considerable weight, on the side of these establishments: in regard to the morals of the people, we are persuaded the most virtuous country town or village will be proportionally corrupt as soldiers are quartered among them; and the fact is, that the soldiers and the citizens may be too much as well as too little intermixed.

Until the year 1793, barracks were neither numerous in Great Britain, nor were they under the control and management of a separate and peculiar board. In January 1793, a superintendant-general of the barracks was appointed; and, on the 1st of May that year, the king's warrant was issued for their regulation. Greater powers were given to him in the year 1794; but as these seemed to interfere with the duties and powers of the Board of Ordnance, a new warrant was issued in the year 1795, defining and limiting the respective duties and powers of the Board of Ordnance, and the superintendant-general, or barrack-master-general, as he was now called. The salaries and extra pay of the barrack-master-general and his officers amounted in 1796 to £9524. 17s. 2d. The establishment was afterwards considerably increased, in proportion as the number of barracks throughout the kingdom increased, and by the creation of some new officers, among whom was a law clerk. In 1806, their salaries amounted to £19,329. 4s. 10d.

During this year the commissioners of military enquiry recommended that the offices of barrack-master-general, and deputy barrack-master-general, should be totally abolished, and that the superintendence of the barrack establishment should be vested in commissioners. This suggestion, and some others relative to the mode of transacting the business of the department, and preventing useless and extravagant expenditure, have been followed; and the barrack establishment is now under the direction of four commissioners, one of whom is generally a military man.

As it frequently happened that it was absolutely necessary to build barracks on an emergency, government was often obliged to pay an extravagant price for the land which they needed for their erection; in order to remedy this evil, it was provided by the act, usually called the defence act, 43d Geo. III. ch. 55, that justices of the peace might put any general officer into the possession of such ground as he might deem fit for the erection of barracks; the value of it to be settled afterwards by a jury; provided, however, the necessity for such ground was certified by the lord lieutenant, or two deputy lieutenants of the county. The following are the barrack districts in Great Britain:

1. Northern, containing Northumberland, Cumberland, Westmoreland, and Durham.
2. York, containing Yorkshire.
3. Eastern, containing Norfolk, Suffolk, Cambridge, Huntingdonshire, and all Essex, except Tilbury-fort.
4. Southern, containing Kent, Tilbury-fort, and Sussex
5. South-western, containing Hampshire and Dorsetshire.
6. Isle of Wight.
7. Western, containing Devonshire, Cornwall, and Somerset.
8. Severn, containing Gloucestershire, Worcestershire, Herefordshire, Monmouthshire, and South Wales.
9. North-western, containing Cheshire, Shropshire, Lancashire, North Wales, and the Isle of Man.
10. London.
11. Home, containing Middlesex, Surry, Hertfordshire, and part of Kent.
12. North-inland, containing Derbyshire, Nottinghamshire, Staffordshire, Warwickshire, Leicestershire, and Rutlandshire.
13. South-inland, containing Bedfordshire, Northamptonshire, Oxfordshire, and Buckinghamshire.
14. Jersey, Guernsey, and Alderney.

SCOTLAND.

Northern, containing Caithness, Sutherland, Ross-shire, Inverness-shire, Nairnshire, Morayshire, and Bamffshire.

Western, containing Aberdeenshire, Argyleshire, Ayrshire, Bute, Kincardineshire, Lanarkshire, Renfrewshire, and Wigtonshire.

Centre, containing Angusshire, Clackmannanshire, Dunbartonshire, Fifeshire, Kinross-shire, Perthshire, and Stirlingshire.

Southern, containing the Lothians, Berwickshire, Peeblesshire, Selkirkshire, Roxburghshire, and Dumfriesshire.

On the 14th of July, 1805, there were in Great Britain and Jersey, &c.

Established barracks of brick and stone	84
——— wood	12
Temporary barracks	75
——— rented	41
	212

The following statement exhibits the several particulars of the total expense incurred by the nation for barracks, and the barrack-office, in Great Britain, between the 25th of December 1792, and the 10th of November 1804:

	£	s.	d.
Buildings and purchases of land	3,930,223	5	8
Forage	846,246	7	10
Beer	643,030	9	6
Coals, candles, furniture, rents, repairs, supplied by barrack-masters, and salaries	1,685,487	8	0
Office-establishment	256,129	10	4
Fees at War-office	80,346	3	6
Insurance	1,519	2	2
Additional rents	36,860	13	5
Lodging money to officers	139,582	16	0
Engines	11,866	0	5
Bedding, furniture, &c. issued by the barrack-office, and in store	1,357,215	7	3
Miscellaneous	35,498	4	8
Total,	£9,024,005	8	9

The annual expense, during the last war, varied from £350,000 to £500 000; in the year

1814, it was £309,826. The peace estimate for 1816 is £173,500. In Ireland, where barracks are more numerous, the expense, in 1814, was £360,515, and the peace estimate for 1816 was £213,000.

See first, second, third, and fourth Reports of the Commissioners of Military Enquiry, 1806; Finance Reports and Estimates laid before Parliament for 1814 and 1816, &c.

BARRACK ALLOWANCE, a specific allowance of bread, beer, coals, &c. to the regiments stationed in barracks.

BARRACK GUARD, the principal guard of a regiment in barracks; the officer of which is responsible for the regularity of the men, and for all prisoners duly committed to his charge while on that duty.

BARRACK-MASTER-GENERAL, a staff-officer at the head of the barrack-department, who has a number of barrack-masters and deputies under him, that are stationed at the different barracks. He has an office and clerks for the despatch of business; and to this office all reports, &c. respecting the barrack department are made.

BARRACOL, in ichthyology, a name given by Artedi, from the Venetians, to the species of ray fish called by Bellonius and Gesner miraletus, and by others raia oculata lævis. The specific name of Artedi carries in it a much better character of the fish; he calls it the ray, with a smooth back and belly; and with the eyes surrounded with a series of spines, and three other rows of them on the tail.

BARRACONDA, a considerable town in central Africa, about 400 miles up the Gambia, where very formidable cataracts obstruct the navigation of the river, and prevent any but the smallest canoes from passing. The tide flows up to this place. Long. 13° W., lat. 13° 36′ N.

BARRACUDA, a species of esox.

BARRADA, or BARRADYS, a river of Syria, rising at Barraud, twenty-four miles west of Damascus. Receiving the Fichée, it divides into seven branches, six miles from that city; the fourth alone, which washes the northern walls, preserving the original name. All the different branches afterwards rejoin the main stream, which is discharged into a lake twenty-one miles north-east.

BARRAGAN, a river of the province and government of Buenos Ayres, which runs north, and enters the Plata.

BARRAGAN, BAY OF, in the La Plata, about twelve miles below Buenos Ayres, to the south-east. Ships discharge, in lighters, their cargoes in the roadstead of Buenos Ayres, and then go to the bay of Barragan to wait for their cargoes out. The land about it is low, and the bay therefore much exposed, nor can ships of any burden come within two or three miles of the shore. Some banks under water, however, meet the force of breakers, but there is little security, when a storm comes on, against a ship's parting from her ground-tackle, and being driven on them. The river running into the bay can receive vessels drawing twelve feet water, but none larger.

BARRAI SCHAHIAT, the Arabian name given to the desert of Natron in Egypt, situated to the west of the Delta, and the south of lake Mareotis. It contains the two lakes Nedebe and Lebe, from which the Natron is drawn, and is pervaded by a vast and deep ravine, called the Bahr Belame, or river without water. This desert is celebrated for the great number of monasteries which were founded in it at a former period.

BARRAMAHAL, a district in Southern India, situated between twelve and fourteen degrees of north latitude, consisting of twelve places, which the name is said to signify. These are Krishnagiry, Jacadeo, Varinaghada, Maharay-ghada, Bujungaghada, Tripatura, Vanambady, Ghanganaghada, Sudarshana-ghada, and Tatucallu. This district was ceded to the British by Tippoo, in 1792. The inhabitants are Hindoos.

BARRATI, BARRED, in ecclesiastical history, an appellation given to the Carmelites, after they were obliged to lay aside the white cap, and wear cowls striped black and white.

BA'RRATOR, *s.* } From *barat*, old French;
BA'RRATRY, *s.* } from which is still retained *barateur*, a cheat; from the Dano-Norman *baret*, our lawyers have *baretter*, *barettry*, a wrangler and encourager of law-suits; one who harasses the bar or courts with importunate litigations. Lord Coke defines barrator to be a common mover and maintainer of suits, in disturbance of the peace. This exciting and fomenting of litigious quarrels is an offence by common law, and punishable by fine and imprisonment; and if the barrator be an attorney, a statute of the 12th of George the First provides that he shall be incapacitated from practising for the future, under pain of seven years' transportation.

> Will it not reflect as much on thy character, Nic, to turn *barrator* in thy old days, a stirrer-up of quarrels amongst thy neighbours?
>
> *Arbuthnot's History of John Bull.*

> 'Tis arrant *barratry*, that bears
> Point blank an action 'gainst our laws.
>
> *Hudibras.*

BARRATRY, in commerce. See BARATRY and INSURANCE.

BARRATRY, in the law of England, has been noticed. See BARATRY. The term, however, is of foreign origin; and in Italy, and other countries, seems ordinarily to have been applied to the traffic of ecclesiastical benefices; but was afterwards used in a more general sense, as applicable to all corrupt buying and selling of justice. In Scotland it signified the corrupt purchasing of benefices or offices of collection, from the see of Rome, by persons who left the realm for that purpose; a practice which had become frequent, and was in various respects injurious to the realm; as a means of carrying money out of it, without any return of value, as prejudicial to the right of patronage in the king or others, and to the free elections of the monks in the monasteries, both which the pope by prevention pretended to exclude; and as contributing to raise the rate of taxation upon benefices, by the false accounts which those suitors for the office of collector carried to the pope.

BARRAUX, or FORT BARREAUX, a fortress of France, in Dauphiny, on the borders of Savoy, now included in the department of the Isere, arrondissement of Grenoble. It stands on the right bank of the river Isere, near the entrance

of the valley of Gresivaudan, on the road from Grenoble to Chamberry, eighteen miles north-east of the former town. The fort was erected at a great expense by Charles Emanuel, duke of Savoy, in 1597, and is strong both by nature and art. The French, however, got possession of it in a single night, and is retained it at the peace of Vervins, on the plea that it was built on French ground. Population 1320.

BARRE (Louis Francis Joseph de la), an ingenious writer, born at Tournay, in 1688. He received his education at the college of St. Barbe, at Paris, where he assisted Anselm Banduri in his extensive work, Imper. Orientale, Recueils de Medailles des empereurs, after which he had a pension given him by the grand duke of Tuscany. He also published Memoirs for the History of France and Burgundy, and various other works. He died in 1738.

BARRE' or BARRY (Madame Du), the favorite mistress of Louis XV. She is said to have been one of the richest women in France. She was condemned by the revolutionary tribunal of Paris, as a conspirator against the republic. Her behaviour was marked by unusual cowardice. The executoiner was obliged to support her all the way to the scaffold, and he required two assistants to lift her upon it; after which she exerted all her strength to prevent being fastened to the plank. She was guillotined on the 9th December 1793.

BARRE', a township of Worcester county, Massachusetts, twenty-four miles north-west of Worcester, and sixty-six west of Boston. Also a township of Pennsylvania, in Huntingdon county.

BA'RREL, *v.* & *n.* Fr. *barril*, Ital. *barrile*, Span. *barril*. Junius says, perhaps from *barre*, *repagulum* (see To BAR); because liquids are held or contained in a cask, quasi in quondam repagulo; as if under bar, or in a stout strong vessel stopped close. It is applied to any thing hollow, as to the ear, the barrel of a gun, a cylinder about which any thing is wound. It also denominates a particular measure.

I would have their beef beforehand *barrelled*, which may be used as is needed. *Spenser on Ireland.*

Barrel up earth and sow some seed in it, and put it in the bottom of a pond. *Bacon.*

It hath been observed by one of the ancients, that an empty *barrel*, knocked upon with the finger, giveth a diapason to the sound of the like *barrel* full. *Id.*

Trembling to approach
The little *barrel* which he fears to broach.
Dryden.

Several colleges, instead of limiting their rents to a certain sum, prevailed with their tenants to pay the price of so many *barrels* of corn, as the market went. *Swift.*

Take the *barrel* of a long gun perfectly bored, set it upright, with the breech upon the ground, and take a bullet exactly fit for it; then, if you suck at the mouth of the *barrel* ever so gently, the bullet will come up so forcibly, that it will hazard the striking out your teeth. *Digby.*

Your string and bow must be accommodated to your drill; if too weak, it will not carry about the *barrel*. *Moxon.*

BARREL, in mechanics, a term given by watch makers to the cylinder about which the spring is wrapped; and by gun-smiths to the cylindrical tube of a gun, pistol, &c. through which the ball is discharged.

BARREL OF A PUMP, is the wooden tube which makes the body of the engine, and wherein the piston moves.

BARREL OF EELS and BARREL of SALMON, ought to contain forty-two gallons each.

BARREL of SOAP must weigh 256lb.

BARREL, or BARILLE of Florence, is a liquid measure, containing twenty flasks, or one-third of a star or staio.

BARREL, or BARIQUE of Paris, contains 210 pints, or twenty-six septiers and a half; four bariques make three muids, or one tun.

BARRELS, in artillery, are used for holding powder, small-shot, flints, sulphur, salt-petre, resin, pitch, quick-match, &c. Barrels filled with earth serve to make a parapet to cover the men, like gabions and canvas bags.

BARRELS, FIRE, are casks of divers capacities, filled with bombs, grenadoes, fire pots, &c. and mixed with great quantities of tow soaked in petroleum, turpentine, pitch, &c. used by the besieged to defend breaches. Some are mounted on wheels, filled with composition, and intermixed with loaded grenades, and the outside full of sharp spikes; some are placed under ground, which have the effect of small mines: others are used to roll down a breach, to prevent the enemy's entrance. Composition, corned powder, thirty pounds, Swedish pitch twelve, saltpetre six, and tallow three. Not used now. See FIRE SHIP

BARRELS OF GUNPOWDER are about sixteen inches diameter, and thirty or thirty-two inches long, holding 100 pounds of powder; but the quantity put into a whole barrel is only ninety pounds, into a half barrel forty-five pounds, and a quarter barrel, used for rifle powder, only twenty-two pounds and a half; this proportion leaves a space for the powder to separate when rolled, or otherwise it would always be in lumps, and liable thereby to damage.

BARRELS, BUDGE, hold from forty to sixty pounds of powder; at one end is fixed a leathern bag with brass nails: they are used in actual service on the batteries, for loading the guns and mortars, to keep the powder from firing by accident.

BARRELS'S SOUND, on the north-west coast of America, is situated about six leagues north-west of Washington, or Charlotte Islands. Long. 131° W., lat. 52° N.

BARRELLING OF HERRINGS. See HERRING FISHERY.

BA'RREN, *adj.* } Barren, i. e. *barr*-ed,
BA'RRENLY, *adv.* } stopped, shut, strongly
BA'RRENNESS, *s.* } closed up, which cannot be opened, from which can be no spirit or issue.—*Tooke.* See To BAR. Thus it is applied to sterile ground, unfruitful trees, unprolific animals; to unimaginative and uninstructed minds; to professedly intellectual works, destitute of thought, and originality; to whatever is useless and unproductive.

But I that am exiled; and *barreine*
Of alle grace, and in so gret despaire,
That there n'is erthe, water, fire, ne aire,

Ne creature that of him maked is
That may me hele, or don comfort in this.
Chaucer.

Glad was the markis, and his folk therefore,
For though a maiden child come all before
She may unto a knave child atteine;
By likelyhed, sin she n'is not *barreine*. *Id.*

It is a darksome delve, farre under ground,
With thornes and *barren* brakes environed round,
That none the same may easily out-win;
Yet many waies to enter may be found,
But none to issue forth when one is in:
For discord harder is to end than to begin.
Spenser.

Thou *barraine* ground, whom winter's wrath hath wasted,
Art made a mirror to behold my plight.
Whilome thy fresh spring flowr'd, and after hasted
Thy summer proude with daffodillees dight;
And now is come thy winter's stormie state,
Thy mantle mard wherein thou maskedst late. *Id.*

Yet, O most blessed Spirit! pure Lampe of Light,
Eternal Spring of Grace and Wisedom trew,
Vouchsafe to shed into my *barren* spright
Some little drop of thy celestial dew,
That may my rimes with sweet infuse embrew,
And give me words equal unto my thought,
To tell the marveiles by Thy mercie wrought. *Id.*

It is one especial praise of many, which are due to this poet, that he hath laboured to restore as to their rightfull heritage such good and naturall English wordes as have beene long time out of use and almost clean disherited, which is the only cause that our mother tongue, which truly of itself is both full enough for prose, and stately enough for verse, hath long time been counted most *barren* and bare of both.
Critique on Spenser, prefixed to his Works.

There shall not be male or female *barren* among you, or among your cattle. *Deuteronomy.*

Give me no help in lamentations;
I am not *barren* to bring forth laments. *Shakspeare.*

There be of them that will make themselves laugh, to set on some quantity of *barren* spectators to laugh too. *Id.*

Forget not in your speed, Antonius,
To touch Calphurnia; for our elders say
The *barren*, touched in this holy chase,
Shake off their steril curse. *Id.*

The situation of this city is pleasant, but the water is naught, and the ground *barren*. 2 *Kings.*

Within the self same-hamlet, lands have divers degrees of value, through the diversity of their fertility or *barrenness*. *Bacon.*

The importunity of our adversaries hath constrained us longer to dwell than the *barrenness* of so poor a cause could have seemed either to require or to admit.
Hooker.

Straight mine eye hath caught new pleasures
Whilst the landscape round it measures;
Russet lawns and fallows gray,
Where the nibbling flocks do stray;
Mountains, on whose *barren* breast
The lab'ring clouds do often rest;
Meadows trim, with daisies pied,
Shallow brooks, and rivers wide. *Milton.*

They led the vine
To wed her elm; she spous'd about him twines
Her marriageable arms, and with her brings
Her dow'r, th' adopted clusters, to adorn
His *barren* leaves. *Id.*

I prav'd for children, and thought *barrenness*
In wedlock a reproach. *Id.*

No more be mention'd then of violence
Against ourselves; and wilful *barrenness*
That cuts off us from hope. *Id.*

The adventures of Ulysses are imitated in the Æneis; though the accidents are not the same, which would have argued him of a total *barrenness* of invention.
Dryden.

Telemachus is far from exalting the nature of his country; he confesses it to be *barren*. *Pope.*

Some schemes will appear *barren* of hints and matter, but prove to be fruitful. *Swift.*

Without the evening dew and show'rs,
The earth would be a *barren* place,
Of trees, and plants, of herbs and flow'rs,
To crown her now enamell'd face.
Charles Cotton.

This heart, by age and grief congeal'd,
Is no more sensible to love's endearments,
Than are our *barren* rocks to morn's sweet dew,
That calmly trickles down their rugged cheeks.
Miller's Mahomet.

There is a power upon me which withholds
And makes it my fatality to live:
If it be life to wear within myself,
This *barrenness* of spirit, and to be
My own soul's sepulchre, for I have ceas'd
To justify my deeds unto myself,
The last infirmity of evil. *Byron.*

Barren Island, an island in the bay of Bengal, about eighteen miles in circumference; the vegetation consists principally of withered shrubs and trees. It contains a volcano 1800 feet above the level of the sea. Immense columns of smoke and showers of red-hot stones, some of them three or four tons weight, are discharged from it. Distant forty-five miles east of the Lower Andaman Island. Lat. 12° 15′ N. Also a small island in Chesapeake bay, north-east from the mouth of Patuxent river. Long. 76° 22′ W., lat. 38° 34′ N.

Barren Island, Cape, an island of the South Pacific Ocean, in Bass Straits, between Great Island on the north, and Clarke's Island on the south. It is about twenty miles in length, and ten in breadth, chiefly covered with low vegetation. Here are found the peculiar quadrupeds of the Australasian regions, the kangaroo, wombat, and duck-billed ant eater.

Barrenness. See Sterility.

Barren-wort. See Epimedium.

BARRERIA, in botany, a genus of plants, class pentandria, order monogynia. Its generic character is cal. quinquedentate; cor. rotate, divisions scrobiculate; filaments dilated; anth. tetragonal, marginate, margins cohering. The only species of this genus is the B. theobromæfolia, a tree of about fifty feet in height, a native of Cayenne.

BARRETRY. See Barratry.

BARRETT (George), an eminent landscape painter, was born in Dublin about 1732. By natural genius and application, he acquired, without a teacher, such skill in the art of painting, as to obtain the premium of £50 offered by the Dublin society for the best landscape in oil. He afterwards went to London, and there, in 1763, the premium of £50 for the best landscape, was adjudged to him by the society for the encouragement of arts, &c. He was one of the original planners of the Royal Academy, of which he became a member. He died in 1784.

Barrett (William,) an eminent surgeon, born in Somersetshire. He settled at Bristol, and gained great reputation in his business. In 1788

he published a history of the city of Bristol, in one vol. 4to. the materials of which he had employed upwards of twenty years in collecting. He died in 1789. Mr. Barrett was the early patron of the celebrated Chatterton.

BARRICA'DE, *v.* & *n.* } From *barr*, to stop,
BARRICA'DO, *v.* & *n.* } bar, or obstruct. A
BA'RRICO, } fortification; any thing
BARRIER. } fixed to hinder entrance;

barrier likewise signifies boundary or limit; a bar to mark the limits of any place.

Why it hath bay windows, transparent as *barricadoes*; and the clear stones to the north are as lustrous as ebony; and yet complainest thou of obstructions. *Shakspeare.*

The access was by a neck of land, between the sea on one part, and the harbour water, or inner sea on the other; fortified clean over with a strong rampier and *barricado*. *Bacon.*

For justs, and tourneys, and *barriers*, the glories of them are chiefly in the chariots, wherein the challengers make their entries. *Id.*

Fast we found, fast shut
The dismal gates, and *barricado'd* strong! *Milton.*

He had not time to *barricado* the doors; so that the enemy entered. *Clarendon.*

The truth of causes we find so obliterated, that it seems almost *barricadoed* from any intellectual approach. *Harvey.*

This he courageously invaded,
And having enter'd, *barricaded*,
Insconc'd himself as formidable
As could be underneath a table. *Hudibras.*

Pris'ners to the pillar bound,
At either *barrier* plac'd; nor, captives made,
Be freed, or arm'd anew. *Dryden.*

The queen is guarantee of the Dutch, having possession of the *barrier*, and the revenues thereof, before a peace. *Swift.*

But wave what'er to Cadmus may belong,
And fix, O muse, the *barrier* of thy song
At Oedipus. *Pope's Statius.*

How instinct varies in the grovelling swine,
Compar'd half reas'ning elephant! with thine:
'Twixt that and reason what a nice *barrier!*
For ever sep'rate, yet for ever near. *Pope.*

Safe in the love of Heav'n, an ocean flows
Around our realm, a *barrier* from the foes. *Id.*

Now all the pavement sounds with trampling feet,
And the mix'd hurry *barricades* the street;
Entangled here, the waggon's lengthened team. *Gay.*

If you value yourself as a man of learning, you are building a most impassable *barrier* against improvement. *Watts.*

The *barrier* wall, the river deep and wide,
The horrid crags, the mountains dark and tall,
Rise like the rocks that part Hispania's land from Gaul. *Byron.*

BARRICADE, in military affairs, is usually formed when time permits, of pales or stakes crossed with batoons, and shod with iron at the feet, and set up in passages or breaches.

BARRICADE, in naval architecture, a strong wooden rail, supported by stanchions, extending across the foremost part of the quarter deck. In a vessel of war, the vacant spaces between the stanchions are commonly filled with rope-mats, cork, or pieces of old cable; and the upper part, which contains a double rope-netting above the rail, is stuffed with full hammocks to intercept the motion, and prevent the execution of small shot in time of battle.

BARRIER, in fortification, a kind of fence made at a passage, retrenchment, &c. to stop up the entry. It is composed of great stakes, about four or five feet high, placed at the distance of eight or ten feet from one another, with transums, or overthwart rafters, to stop either horse or foot, that would enter or rush in with violence: in the middle is a moveable bar of wood, that opens or shuts at pleasure. A barrier is commonly set up in a void space, between the citadel and the town, in half-moons, &c.

BARRIER ISLANDS, a range of islands near the east coast of New Zealand, thirty miles in length, at the mouth of the river Thames. Long. 184° 27′ W., lat. 36° 11′ S.

BARRIERS, styled the jeu de barres, French, was a martial exercise of men armed and fighting together with swords, within certain bars or rails which separated them from the spectators. It is now disused.

BARRIGA NEGRA, a river in the vice-royalty of Buenos Ayres, South America, which has its rise about 160 miles north-west of Monte Video, and after being augmented by the accession of several streams, falls into lake Meri. The country around is well watered, mountainous, and woody. Here are numbers of great breeding estates for cattle.

BARRING A VEIN. See To BAR.

BARRINGTON (John Shute, Viscount), a distinguished theologian, was the youngest son of Benjamin Shute, Esq. a merchant and a protestant dissenter. He was born in 1678, and received part of his education abroad. On his return to London, he studied in the Inner Temple, and in 1701 distinguished himself as a writer in favor of the civil rights of the dissenters. Being employed by Lord Somers to engage the Presbyterians of Scotland to favor the union between the two kingdoms, he was in 1708 rewarded by the place of commissioner of the customs, from which the tory ministry of Anne removed him. About this time an ample fortune was left him by Francis Barrington of Tofts, Esq. whose name he assumed. On the accession of George I. he was chosen member of parliament for Berwick-upon-Tweed, and in 1720 was raised to the peerage by the title of viscount Barrington of Ardglass. Unfortunately he became connected with one of the bubbles of that time, called the Harburgh Lottery; and was in consequence expelled the House of Commons; a censure which he scarcely merited, as the misconduct seems to have rested principally with the ministry of Hanover. But his strong opposition to Sir Robert Walpole is thought to have produced this severity. In 1725 Lord Barrington published his 'Miscellanea Sacra,' 2 vols. 8vo., since reprinted by his son, the late Bishop of Durham, 3 vols. 8vo. 1770. In the same year he published 'An Essay on the several Dispensations of God to Mankind,' 8vo. and was also the author of various other tracts relative to toleration in matters of religion. He died in 1734, leaving several children, of whom five sons rose to high stations respectively in the state, the church, the law, the army, and the navy; the youngest of them was the late venerable Bishop of Durham. Lord Barrington was the friend and disciple of Locke;

and although bred a Dissenter, and a leader of that body, was also a frequenter and communicant of the Church of England.

Barrington (Daines), fourth son of viscount Barrington, was distinguished as a lawyer, antiquary, and naturalist. He was born in 1727, and, after preparatory studies at Oxford and the Inner Temple, was called to the bar. He held several offices previous to his being appointed a Welch judge in 1757, and was subsequently second justice of Chester till 1785, when he resigned that post, and thenceforward lived in retirement, in the Temple, where he died, March 1800. His works, which are numerous, consist principally of papers in the Transactions of the Royal and Antiquarian Societies, of both which learned bodies he was a fellow; Observations on the Statutes, chiefly on the more Ancient, &c. 1766, 4to.; an edition of Orosius, with the Anglo-Saxon version of king Alfred, and an English translation and notes, 1773; Tracts on the Probability of reaching the North Pole, 1775, 4to. occasioned by the arctic expedition of Capt. Phipps, afterwards Lord Mulgrave.

Barrington, a township of Nova Scotia, in Queen's county, on the east side of the bay of Fundy. 2. A township of New Hampshire, in Stafford county, about thirty miles north-west of Portsmouth. Alum is found here. 3. A township of Rhode Island, in Bristol county, on the north-west branch of the Warren, seven miles south-east of Fox-Point, in Providence.

Barrington, Great, a township in Berkshire, county of Massachusetts. It lies 140 miles west of Boston.

BARRINGTONIA, in botany, a genus of the polyandria order, belonging to the monadelphia class of plants, the characters of which are: one female, the calyx dephillous above; with a drupa, which it crowns; and the seed is a quadrilocular nut. There is but one species known, viz. B. speciosa, a native of China and Otaheite.

BA'RRISTER; from *barr*, and *ester*, to remain or continue: thus the combination of the two forms, *barrester*, one who takes his station at a bar; who continues there—that is who carries on his profession at the bar; a pleader of causes.

> Jollier of this state,
> Than are new-benefic'd ministers; he throws,
> Like nets or lime-twigs, wheresoe'er he goes,
> His title of *barrister* on every wench,
> And wooes in language of the Pleas and Bench.
> *Donne.*

> This being reveal'd, they now begun
> With law and conscience to fall on,
> And laid about as hot and brainsick,
> As th' utter *barrister* of Swanswick.
> *Butler's Hudi'ras.*

Barristers are sometimes termed jurisconsulti; and in other countries called licentiati in jure. Anciently barristers at law were called apprentices of the law, in Latin, apprenticii juris nobiliores. The time before they ought to be called to the bar, by the ancient orders, was eight years, now reduced to five; and the exercises done by them, (if they were not called ex gratia) were twelve grand moots performed in the inns of Chancery in the time of the grand readings, and twenty-four petty moots in the term times, before the readers of the respective inns: and a barrister newly called is to attend the six (or four) next long vacations the exercises of the house, viz. Lent and Summer, and is thereupon for those three (or two) years styled a vacation barrister. The duties of a barrister are to be considered honorary, and he can maintain no action for his fees, which are reckoned a gratuity, not a hire; and which cannot be even demanded by a barrister without doing wrong to his reputation.

BARRITUS is a word of German original, adopted by the Romans to signify the general shout usually given by the soldiers of their armies on their first encounter after the classicum or alarm. This custom, however, of setting up a general shout was not peculiar to the Romans, but prevailed amongst the Trojans according to Homer, amongst the Germans, the Gauls, Macedonians, and Persians. See Classicum.

BARROS (John de), a celebrated Portuguese historian, born at Visere, in 1496. He was educated at the court of king Emanuel, among the princes of the blood, and made a great progress in Greek and Latin. The infant John, to whom he attached himself, and became preceptor, having succeeded the king his father, in 1521, Barros obtained a place in this prince's household; and in 1522 was made governor of St. George del Mina, on the coast of Guinea. The king, having recalled him to court three years after, made him treasurer of the Indies, and this post inspired him with the thought of writing this history; for which purpose he retired to Pombal, where he died in 1570. His history of Asia and the Indies is divided into decades; the first of which he published in 1552, the second in 1553, and the third in 1563; but the fourth decade was not published till 1615, when it appeared by order of Philip III. who purchased the MS. Several authors have continued it, so that we have at present twelve decades. He left many other works.

BARROW, *n. s.* beɲeþe, Sax. supposed by Skinner to come from bear; any kind of carriage moved by the hand; as a *hand-barrow*, a frame of boards, with handles at each end, carried between two men; a *wheel-barrow*, that which one man pushes forward by raising on one wheel.

> Have I lived to be carried in a basket, like a *barrow* of butcher's offal, and thrown into the Thames.
> *Shakspeare.*

> No *barrow's* wheel
> Shall mark thy stocking with a miry trace. *Gay.*

Ba'rrow, *n. s.* beɲʒ. Sax. a hog; whence *barrow* grease, or hog's lard.

> His life was like a *barrow* hogge,
> That liveth many a day,
> Yet never once doth any good,
> Until men will him slay.
> *The Jew of Venice, in Percy.*

> And therefore take my words thus, that I mean no other swine but such as feed and root in the field: among which the female, especially a guelt that never farrowed, is more effectual than a (tame) bore, *barrow* hog, or a breeding sow. *Holland's Plinie.*

Barrow, whether in the beginning or end of names of places, signifies a grove; from beaɲþe, which the Saxons used in the same sense. *Gibson.*

Barrow is likewise used in Cornwall for a

hillock, under which, in old times, bodies have been buried. See Barrows.

Barrow, a river of Ireland, which rises in Queen's county, and passing by Port-Arlington, Monastereven, Athy, Carlow, &c. is joined by the Nore before it arrives at Ross, after which, continuing south, it joins the Suir in Waterford Haven.

Barrow, a river of Westmoreland, which runs into the Burbeck, near Howse-house.

Barrow (Isaac), an eminent mathematician and divine, of the last century, was the son of Mr. Thomas Barrow, a linen-draper in London, where he was born in 1630. He was at first placed at the charter-house school for two or three years; where his behaviour afforded but little hopes of success in the profession of a scholar, but being removed thence his disposition took a happier turn; and having soon made a sufficient progress in learning, he was admitted a pensioner of Peter House, Cambridge. He now applied himself with great diligence to the study of all branches of literature, especially that of natural philosophy. He afterwards turned his attention to physic, and made a considerable progress in anatomy, botany, and chemistry; after which he studied chronology, astronomy, and geometry. He then travelled into France and Italy, and in a voyage from Leghorn to Smyrna, the ship being attacked by an Algerine pirate, he staid upon deck, and with the greatest intrepidity, worked the guns, till the pirate, perceiving the stout resistance the ship made, sheered off and left her. At Smyrna he met with a most kind reception from Mr. Bretton, the English consul, upon whose death he afterwards wrote a Latin elegy. From thence he proceeded to Constantinople, where he received similar civilities from Sir Thomas Bendish the English ambassador, and Sir Jonathan Dawes, with whom he afterwards preserved an intimate friendship. At Constantinople he read the works of St. Chrysostom, once bishop of that see, whom he preferred to all the other fathers, and about a year after he returned to Venice. From thence he came home in 1659, through Germany and Holland; and was ordained by bishop Brownrig. In 1660 he was chosen to the Greek professorship at Cambridge, and gave lectures upon Aristotle's rhetoric. In 1662 he was appointed professor of geometry in Gresham college, and in 1663 elected a fellow of the Royal Society, in the first choice made by the council after their charter. The same year he was chosen professor of mathematics at Cambridge, and resigned his professorship of Gresham college. In 1669 he resigned his mathematical chair to his learned friend Isaac Newton, being determined to give up the study of mathematics for that of divinity. Upon quitting his professorship, he was only a fellow of Trinity college, till his uncle gave him a small sinecure in Wales, and Dr. Seth Ward, bishop of Salisbury conferred upon him a prebend in his church. In 1670 he was created D. D. by mandate; and, upon the promotion of Dr. Pearson, master of Trinity college, to the see of Chester, he was appointed to succeed him by the king's patent, dated the 13th of February, 1672. When the king advanced him to this dignity, he said, 'he had given it to the best scholar in England.' In 1675 he was raised to be vice-chancellor of the university. He died on the 4th of May, 1677, in the forty-seventh year of his age, and was interred in Westminster abbey, where a monument adorned with his bust was soon after erected. Among other instances of his wit and vivacity, is related the following rencontre between him and the celebrated Lord Rochester. These two meeting one day at the court, while the doctor was king's chaplain in ordinary, Rochester, thinking to banter him, with a flippant air, and a low formal bow, accosted him with, 'Doctor, I am yours to my shoe-tie;' Barrow, perceiving his drift, and determined upon defending himself, returned the salute, with, 'My lord, I am yours to the ground.' Rochester, on this, improving his blow, returned it with, 'Doctor, I am yours to the centre;' which was as smartly followed up by Barrow, with, 'My lord, I am yours to the antipodes.' Upon which, Rochester, disdaining to be foiled by a musty old piece of divinity, as he used to call him, exclaimed, 'Doctor, I am yours to the lowest pit of hell;' upon which, Barrow turning upon his heel, with a sarcastic smile, archly replied, 'There, my lord, I leave you.'

Of Dr. Barrow's numerous works, the principal are, 1. Euclidis Elementa, 8vo. Cantab. 1655. 2. Euclidis Data, 8vo. Cantab. 1657. 3. Lectiones Opticæ XVIII. 4to. Lond. 1669. 4. Lectiones Geometricæ XIII. 4to. Lond. 1670. 5. Archimedis Opera, Apollonii Conicorum, Libri IV; Theodosii Sphericorum, Lib. III. &c. 4to. Lond. 1675. 6. Lectio, in qua Theoremata Archimedis de Sphæra et Cylindro exhibentur, 12mo. Lond. 1678. 7. Mathematicæ Lectiones, &c. Lond. 1683. 8. Theologica. Works in 3 vols. fol. Lond. 1683, published by Tillotson. 9. Isaaci Barrow Opuscula, &c. fol. Lond. 1687.

Barrows, in ancient topography, artificial hillocks or mounts, met with in many parts of the world, intended as repositories for the dead, and formed either of stones heaped up, or of earth. For the former, more generally known by the name of cairns, see Cairns. Of the latter Dr. Plott takes notice of two kinds in Oxfordshire: one placed on the military ways; the other in the fields, meadows, or woods; the first sort doubtless of Roman erection, the other more probably erected by the Britons or Danes. We have an examination of the barrows in Cornwall by Dr. Williams, in the Phil. Trans. No. 458, from which we find that they are generally composed of foreign or adventitious earth; that is, such as does not rise on the place, but is fetched from some distance. Monuments of this kind are also very frequent in Scotland. On digging into the barrows, urns have been found in some of them, made of calcined earth, and containing burnt bones and ashes; in others, stone chests containing bones entire; in others, bones neither lodged in chests nor deposited in urns. These tumuli are round, not greatly elevated, and generally at their basis surrounded with a fosse. They are of different sizes; in proportion, it is supposed, to the greatness, rank, and power, of the deceased person. The links of Skail, in Sand-

wick, one of the Orkneys, abound in round barrows. Some are formed of earth alone, others of stone covered with earth. In the former was found a coffin, made of six flat stones. They are too short to receive a body at full length: the skeletons found in them lie with the knees pressed to the breast, and the legs doubled along the thighs. A bag, made of rushes, has been found at the feet of some of these skeletons, containing the bones, most probably, of another of the family. In one were to be seen multitudes of small beetles; and as similar insects have been discovered in the bag which enclosed the sacred ibis, we may suppose that the Egyptians, and the nation to whom these tumuli belonged, might have had the same superstition respecting them. On some of the corpses interred in this island marks of burning were observed. The ashes deposited in an urn, which was covered on the top with a flat stone, have been found in the cell of one of the barrows. This coffin or cell was placed on the ground, then covered with a heap of stones, and that again cased with earth and sods. Both barrow and contents evince them to be of a different age from the former. These tumuli were in the nature of family vaults: in them have been found two tiers of coffins. It is probable, that on the death of any one of the family, the tumulus was opened, and the body interred near its kindred bones. Ancient Greece and Latium concurred in the same practice with the natives of this island. Patroclus among the Greeks, and Hector among the Trojans, received but the same funeral honors with our Caledonian heroes; and the ashes of Dercennus the Laurentine monarch had the same simple protection. The urn and pall of the Trojan warrior might perhaps be more superb than those of a British leader: the rising monument of each had the common materials from our mother earth. See Homer's Iliad. xxiv. 1003. The Grecian barrows, however, do not seem to have been all equally simple. The barrow of Alyattes, father of Crœsus king of Lydia, is described by Herodotus as a most superb monument, inferior only to the works of the Egyptians and Babylonians. It was a vast mound of earth heaped on a basement of large stones by three classes of the people: one of which was composed of girls, who were prostitutes. Alyattes died, after a long reign, A.A.C. 562. Above a century interned, but the historian relates, that to his time the stones (ὅροι termini or stelæ) on which letters were engraved, had remained on the top, recording what each class had performed; and from the measurement it appeared, that the greater portion was done by the girls. Strabo likewise has mentioned it as a huge mound, raised on a lofty basement by the multitude of the city. The circumference was six stadia or three quarters of a mile; the height two plethra or 200 feet; and the width thirteen plethra. It was customary among the Greeks to place on barrows, either the image of some animal or stelæ, commonly round pillars with inscriptions. The famous barrow of the Athenians in the plain of Marathon, described by Pausanias, is an instance of the latter usage. An ancient monument in Italy, by the Appian way, called the sepulchre of the Curiatii, has the same number of termini as remained on the barrow of Alyattes, the basement which is square, supporting five round pyramids. Of the barrow of Alyattes, the apparent magnitude is described by travellers as now much diminished, and the bottom rendered wider and less distinct than before, by the gradual increase of the soil below. It stands in the midst of others by the lake Gygæus; where the burying place of the Lydian princes was situated. The barrows are of various sizes, the smaller made perhaps for children of the younger branches of the royal family. Four or five are distinguished by their superior magnitude, and are visible as hills at a great distance. That of Alyattes is greatly supereminent. All of them are covered with green turf, and retain their conical form without any sinking in of the top.

Barrows, American. Barrows are also found in great numbers in America. These are of different sizes, according to Mr. Jefferson; some of them constructed of earth, and some of loose stones. That they were repositories of the dead is obvious; but on what particular occasion constructed, is matter of doubt. Some have thought they covered the bones of those who have fallen in battles, fought on the spot of interment. Some ascribed them to the custom said to prevail among the Indians, of collecting, at certain periods, the bones of all their dead, wheresoever deposited at the time of death. Others again supposed them the general sepulchres for towns, conjectured to have been on or near these grounds; and this opinion was supported by the quality of the lands in which they are found (those constructed of earth being generally in the softest and most fertile meadow grounds on river sides), and by a tradition said to be handed down from the aboriginal Indians, that when they settled in a town, the first person who died was placed erect, and earth put about him, so as to cover and support him; that when another died, a narrow passage was dug to the first, the second reclined against him, and the cover of earth replaced, and so on. 'There being one of these barrows in my neighbourhood (says Mr. Jefferson), I wished to satisfy myself whether any, and which, of these opinions were just. For this purpose I determined to open and examine it thoroughly. It was situated on the low grounds of the Rivanna, about two miles above its principal fork, and opposite to some hills, on which had been an Indian town. It was of a spheroidical form, of about forty feet diameter at the base, and had been of about twelve feet altitude, though now reduced by the plough to 7½, having been under cultivation about a dozen years. Before this it was covered with trees of twelve inches diameter, and round the base was an excavation of five feet depth and width, whence the earth had been taken of which the hillock was formed. I first dug superficially in several parts of it, and came to collections of human bones, at different depths, from six inches to three feet below the surface. These were lying in the utmost confusion, some vertical, some oblique, some horizontal, and directed to every

point of the compass, entangled, and held together in clusters, by the earth. Bones of the most distant parts were found together; as, for instance, the small bones of the foot in the hollow of a skull, many skulls would sometimes be in contact, lying on the face, on the side, on the back, top or bottom, so as on the whole to give the idea of bones emptied promiscuously from a bag or basket, and covered over with earth, without any attention to their order. The bones of which the greatest numbers remained, were skulls, jaw-bones, teeth, the bones of the arms, thighs, legs, feet, and hands. A few ribs remained, some vertebræ of the neck and spine, without their processes, and one instance only of the bone which serves as a base to the vertebral column. The skulls were so tender, that they generally fell to pieces on being touched. The other bones were stronger. There were some teeth which were judged to be smaller than those of an adult; a skull which, on a slight view, appeared to be that of an infant, but it fell to pieces on being taken out, so as to prevent satisfactory examination; a rib, and a fragment of the under jaw of a person about half grown; another rib of an infant; and part of the jaw of a child, which had not yet cut its teeth. This last furnishing the most decisive proof of the burial of children here, I was particular in my attention to it. It was part of the right half of the under jaw. The processes by which it was articulated to the temporal bones were entire; and the bone itself firm to where it had been broken off, which, as nearly as I could judge, was about the place of the eye-tooth. Its upper edge, wherein would have been the sockets of the teeth, was perfectly smooth. Measuring it with that of an adult, by placing their hinder processes together, its broken end extended to the penultimate grinder of the adult. This bone was white, all the others of a sand color. The bones of infants being soft, they probably decay sooner, which might be the cause so few were found here, I proceeded then to make a perpendicular cut through the body of the barrow, that I might examine its external structure. This passed about three feet from its centre, was opened to the former surface of the earth, and was wide enough for a man to walk through and examine its sides. At the bottom, that is, on the level of the circumjacent plain, I found bones; above these a few stones, brought from a cliff a quarter of a mile off, and from the river one eighth of a mile off; then a large interval of earth, then a stratum of bones, and so on. At one end of the section were four strata of bones plainly distinguishable: at the other, three; the strata in one part not ranging with those in another. The bones nearest the surface were least decayed. No holes were discovered in any of them, as if made with bullets, arrows, or other weapons. I conjectured that in this barrow might have been 1000 skeletons. Every one will readily seize the circumstances above related, which militate against the opinion that it covered the bones only of persons fallen in battle; and against the tradition also which would make it the common sepulchre of a town, in which the bodies were placed upright, and touching each other. Appearances certainly indicate that it derived both origin and growth from the accustomary collection of bones, and deposition of them together; that the first collection had been deposited on the common surface of the earth, a few stones put over it, and then a covering of earth; that the second had been laid on this, had covered more or less of it in proportion to the number of bones, and was then also covered with earth, and so on. The following are the particular circumstances which give it this aspect. 1. The number of bones. 2. Their confused position. 3. Their being in different strata. 4. The strata in one part having no correspondence with those in another. 5. The different states of decay in these strata, which seem to indicate a difference in the time of inhumation. 6. The existence of infant bones among them. But on whatever occasion they may have been made, they are of considerable notoriety among the Indians: for a party passing, about thirty years ago, through the part of the country where this barrow is, went through the woods directly to it, without any instructions or enquiry; and having staid about it some time, with expressions which were construed to be those of sorrow, they returned to the high road, which they had left about half a dozen miles to pay this visit, and pursued their journey. There is another barrow, much resembling this in the low grounds of the south branch of the Shenandoah, where it is crossed by the road leading from the Rockfish gap to Staunton. Both of these have, within these dozen years, been cleared of their trees and put under cultivation, are much reduced in their height, and spread in width, by the plough, and will probably disappear in time. There is another on a hill in the Blue ridge of mountains, a few miles north of Wood's gap, which is made up of small stones thrown together. This has been opened and found to contain human bones as the others do. There are also many others in other parts of the country.' In South Africa, to the north of the Hottentots, innumerable barrows are described to have been seen by Dr. Sparrow, (Travels ii. 264.) In New Caledonia, also, Mr. Foster met with a barrow four feet high, surrounded by an enclosure of stakes. But the most recent discoveries of the kind, in countries removed from all intercourse with Europe, have been made by Mr. Oxley during his expedition into the interior of New South Wales, in 1817-18. On his return, he passed two native burial places. The first presented a raised mound of earth, under which were some ashes; but there was no decisive proof whether they were from wood or bones. A semicircular trench was dug round one side of the barrow, as if designed to afford seats for persons in attendance. The second appeared not to have been constructed more than a year or two; and, from the care displayed in it, evidently belonged to some personage of distinction. The form of the whole was semicircular. Three rows of seats occupied one half; the grave and an outer row of seats the other. The seats formed segments of circles of from forty to fifty feet, and were raised by the soil being trenched up between them. The grave

was shaped into an oblong cone, five feet high and nine long. On opening this barrow, a layer of wood presented itself, about two feet beneath the surface, forming a sort of arch, which supported the upper cone. Beneath this were placed several sheets of dry bark; then dry grass and leaves, to which no damp had ever penetrated. The body, which was fresh enough to be extremely offensive, was deposited, at the depth of four feet, in an oval grave, as many feet long, and about two feet broad. The legs were bent quite up to the head, and the arms were placed between the thighs. The face was downwards. The direction of the corpse was east and west, the head being to the east. The body was carefully wrapped in a great number of opossum skins. The head was bound round by the common net and girdle of the natives. Over the whole was a larger net. Two cypress trees were to the west and north of this barrow, distant about fifty feet. The sides of them towards the sepulchre were barked, and curious characters were deeply engraven in them.

Barrow, Little, a river of Ireland, which falls into the Barrow, about four miles east of Portarlington.

Barrow, Point, a cape on the south coast of Ireland, in the county of Cork, five miles east of Kinsale. Long. 8° 21′ W., lat. 51° 43′ N.

Barrow's Strait, a considerable strait of the Northern Ocean, so named by Captain Parry, in one of his voyages, in honor of Mr. Barrow of the admiralty.

Barrow upon Soar, a village in Leicestershire; the birth place of bishop Beveridge. It is celebrated for producing a hard blue stone, which, when calcined, makes a lime fit for a strong cement, and adapted to all works under water. The Barrow blue stone was conveyed to Ramsgate for the building of the pier and was found to succeed, after the Dutch tarras mortar had failed.

Barrows, in the salt works, are wicker cases, almost in the shape of a sugar loaf, wherein the salt is put to drain.

BARRSTOBRICK, a rocky moorish hill, in the county of Kirkcudbright and parish of Tongland, where the unfortunate Mary, Queen of Scots, rested and refreshed herself with a few faithful friends, in 1568, after the fatal battle of Langside; on her way to the Abbey of Dundrennan. From this circumstance the farm on that part of Barrstobrick has ever since been called Queen's Hill.

BARRUEL (Augustin), a French ecclesiastic, and a literary man of some eminence during the French revolution, commenced his career in 1774, with an ode on the accession of Louis XVI. Soon after he united with Freron in the composition of the Année Litteraire. In 1788 he became editor of Le Journal Ecclesiastique, which he carried on till July 1792. In 1794 he had escaped, from the opposition his sentiments encountered in Paris, to England, and published his History of the French Clergy during the Revolution. In 1796 appeared the first two volumes of the work by which he is best known, Memoirs for a History of Jacobinism, Impiety, and Anarchy, the remaining part of which followed some years after. Though an exaggerated production, it supplies many facts not otherwise to be found recorded. He returned to France in 1802, and did Oct. 5, 1820, at the age of seventy-nine.

BARRULET, in heraldry, the fourth part of the bar, or the one half of the closset, an usual bearing in coat-armour.

BARRULY, in heraldry, is when the field is divided bar-ways, that is, across from side to side, into several parts.

BARRY (James), a celebrated painter, was born at Cork on the 11th of October, 1741. His father's occupation was that of a coasting-trader, and, anxious to engage his son in the same business, he carried him along with him in several voyages. The mind of Barry, however, averse to such an employment of his talents, was engaged at all leisure moments in sketching and drawing; and his father, perceiving the impossibility of fixing his choice in a seafaring profession, allowed him at last to pursue the natural bias of his disposition. His eager thirst of knowledge, and his persevering industry in acquiring it, now excited the admiration of all his acquaintance, and carried him forward to improvement and information far beyond his years. He read all the books that his slender finances could command, or the kindness of his friends supplied; and his unwearied diligence allowed him no time for frivolous amusement, and little for repose. But he devoted a part of every day to the exercise of his pencil, and at a very early age furnished designs for a volume of fables, printed by an Irish bookseller. He was seventeen years old when he attempted oil painting; but his progress in this first art must have been extremely rapid, and his execution of individual pieces uncommonly quick, since we find him in less than five years not only finishing several large paintings, but producing that work which drew him from the obscurity of a provincial town, and gave him a high place among the artists of his country. The subject that he chose for this picture was an old traditionary story concerning the arrival of Saint Patrick in Ireland; and as soon as he had finished it he set out with it for Dublin. Without acquaintance or recommendation of any kind, he obtained leave to expose his piece in an exhibition of paintings, which was just opening upon his arrival, and had the happiness to see it marked out by public approbation and applause. He shortly after was introduced to the acquaintance, and soon obtained the friendship, of Burke. With that great man he repaired to London, as a better field for the display of his talents, and, under his patronage, was introduced to several artists of eminence. The talents of Mr. Barry were here universally acknowledged to be great; but in proportion as nature had been liberal, his friends and himself felt the importance of seconding her views, by embracing every attainable opportunity of improving her gifts. The most important part of a painter's education having for a long time been considered to be a short residence in Rome, Barry, was enabled to visit, by the assistance of the Burkes, that seat of the arts. There he remained nearly five years, engaged in the deepest researches on the principles of his art, and in the most laborious examination of its noblest specimens. For three years,

he mentions in a letter to Sir Joshua Reynolds, he was so completely occupied in studying the inimitable models of perfection bestowed upon the world by the genius of Michael Angelo, Raphael, Titian, Guido, and other celebrated masters, that he could not spare two hours for any other employment. Nor was any of this portion of his time spent in copying them,—it was entirely devoted to a minute and critical examination of their peculiar manner and characteristic excellencies. In 1771 he returned to his native country, and soon displayed the extent of his powers, and the improvement of his taste, in several masterly appeals to public admiration. His first was a Venus, in which he embodied an amazing assemblage of beauty and grace. The subject he chose for the following year was likewise mythological, being a representation of Jupiter and Juno on Mount Ida. But Mr. Barry's chief object of ambition was to be employed in some national work, which should raise the character of his country, while it should confer permanent reputation on his own name. He had beheld at Rome the works of Raphael and Michael Angelo on the walls of the Vatican, and he saw what splendor magnificent edifices, and noble designs in painting, mutually diffused over each other. He therefore concurred with alacrity in a proposal made to decorate the cathedral of St. Paul's with paintings, and offered his services as one of the artists. But this design was reliquished, owing to the opposition of the primate and the bishop of London. A proposal that was made soon afterwards to Barry and his brother artists, to decorate the great hall of the Society of Arts with historical and allegorical paintings, failed, to his great mortification, like the former. Bent on his great object, he offered to execute this work by himself, and the only condition that he stipulated for was, that he might be allowed to proceed to the end of his designs without interference or control. The condition was agreed to, and the work will remain a lasting monument of his fame. We have not space in this short sketch to describe his beautiful and ingenious designs; we must therefore refer our readers to his own writings for their details, and to the pictures themselves, for a knowledge of the feeling of that excellence; to which his own description can do justice no more than that of others can convey. Dr. Johnson observed, upon seeing them, that they displayed a grasp of mind which was nowhere else to be found. This great work was unproductive of emolument to the author. But the society voted him their gold medal, 250 guineas at different periods, and allowed him the profits of exhibitions, which amounted to £500. It is not very pleasing to follow the artist through the remaining part of his life. In 1777 he was made a Royal Academician, and in 1780 professor of painting in the academy, which situation he lost in 1799, in consequence of his extreme anxiety to induce the academy to appropriate the receipts of the exhibitions to the formation of a gallery of old masters for the use of the pupils. Soon after, the earl of Buchan set on foot a subscription for him, which amounted to about £1000. With this it was intended to purchase an annuity for him, when he was seized with a pleuritic fever, which carried him off on the 22d of February, 1806, aged sixty-five. 'Mr. Barry, as an artist,' Mr. Hazlett has well said, 'as a writer, and a man, was distinguished by great inequality of powers and extreme contradictions in character. He was gross and refined at the same time; violent and urbane; sociable and sullen; inflammable and inert; ardent and phlegmatic; relapsing from enthusiasm into indolence; irritable, headstrong, impatient of restraint; captious in his intercourse with his friends, wavering and desultory in his profession. In his personal habits he was careless of appearances or decency, penurious, slovenly, and squalid. He regarded nothing but his impulses, confirmed into incorrigible habits. His pencil was under no control. His eye and his hand seemed to receive a first rude impulse, to which he gave himself up, and paid no regard to any thing else. The strength of the original impetus only drove him farther from his object. His genius constantly flew off in tangents, and came in contact with nature only at salient points. His enthusiasm and vigor were exhausted in the conception; the execution was crude and abortive. His writings are a greater acquisition to the art than his paintings. The powers of conversation were what he most excelled in; and the influence which he exercised in this way over all companies where he came, in spite of the coarseness of his dress, and the frequent rudeness of his manner, was great. Take him for all in all, he was a man of whose memory it is impossible to think without admiration as well as regret.' Towards the close of life he was doubtless occasionally deranged. His works are collected in two quarto volumes, 1809, of which his Lectures are deemed the best part.

BARRY (Girald), commonly called Giraldus Cambrensis, Girald of Wales, an historian and ecclesiastic in the reigns of Henry II. and Richard I., was born at the castle of Manorbier, near Pembroke, A. D. 1146. By his mother he was decended from the princes of South Wales, and his father, William Barry, was one of the chief men of that principality. Being a younger brother, and intended for the church, he was sent to St. David's, and educated in the family of his uncle, who was bishop of that see. He acknowledges, in his history of his own life and actions, that in his youth he was too playful; but being reproached for it by his preceptors, he became a very hard student, and excelled all his schoolfellows. When he was about twenty years of age he was sent, A. D. 1166, for improvement to the university of Paris; where he continued five years. On his return to Britain he entered into holy orders, and obtained several benefices in England and Wales. Observing that his countrymen were backward in paying the tithes of wool and cheese, which he was afraid would involve them in eternal ruin, he applied to Richard, archbishop of Canterbury, and was appointed his legate in Wales for rectifying that disorder. He executed his commission with great spirit; excommunicating all who refused to save their souls by surrendering the tithes of cheese and wool. Not satisfied with enriching, he also attempted to reform, the clergy; and reported the archdeacon of Brecon, for the unpardonable

crime of matrimony. The poor old man refusing to put away his wife, was deprived of his archdeaconry; which was bestowed upon our zealous legate. His great vigor involved him in many quarrels. His uncle, the bishop of St. David's, dying A. D. 1176, he was elected his successor by the chapter: but this election having been made contrary to the inclination of Henry II. he did not insist upon it, but went again to Paris to prosecute his studies, in the civil and canon law, and theology. Having spent about four years at Paris, he returned to St. David's, where he found every thing in confusion; and the bishop being expelled by the people, he was appointed administrator by the archbishop of Canterbury, and governed the diocese in that capacity till A. D. 1184, when he was restored. About the same time he was called to court by Henry the Second, appointed one of his chaplains, and sent into Ireland A. D. 1185, with prince John. By this prince he was offered the united bishoprics of Fernes and Leighlin, but declined them, and employed his time in collecting materials for his Topography of Ireland, and his history of the conquest of that island. Having finished the former work, which consisted of three books, he published it at Oxford, A. D. 1287, in the following curious manner, in three days. On the first day he read the first book to a great concourse of people, and afterwards entertained all the poor of the town; on the second day he read the second, and entertained the doctors and chief scholars; and on the third day he read the third book, and entertained the young scholars, soldiers, and burgesses. 'A most glorious spectacle!' says he, 'which revived the ancient times of the poets, and of which no example had been seen in England.' He attended Baldwin, archbishop of Canterbury, in his progress through Wales, A. D. 1186, in preaching a croisade for the recovery of the Holy Land; in which he tells us he was far more successful than the primate; and that the people were prodigiously affected with his Latin sermons, which they did not understand, melting even to tears, and coming in crowds to take the cross. Although Henry II. entertained the highest opinion of his abilities, he never advanced him to any higher dignity in the church on account of his relation to the princes of Wales. But on the accession of Richard I. A. D. 1189, his prospects of preferment became better, for he was sent for by that prince into Wales to preserve the peace of that country, and joined in commission with William Longchamp, bishop of Ely, as one of the regents of the kingdom. He did not however, improve his favorable opportunity, refusing the bishopric of Bangor in A. D. 1190, and that of Landaff the year after, having fixed his heart on the see of St. David's, the bishop of which was very old and infirm. In A. D. 1192 the state of public affairs and the course of interest at court became so unfavorable to our author's views, that he determined to retire. At first he resolved to return to Paris to prosecute his studies; but meeting with difficulties in this, he went to Lincoln, where William de Monte read lectures in theology with great applause. Here he spent about three years studying divinity, and composing various works. The see of St. David's, which had long been the object of his ambition, now became vacant, (A. D. 1198) and brought him again upon the stage. He was unanimously elected by the chapter; but met with so powerful an adversary in Hubert, archbishop of Canterbury, that it involved him in a litigation which lasted three years, cost him three journeys to Rome, at a great expense, and in which he was at last defeated, A. D. 1203. Soon after, he retired from the world, and spent the last seventeen years of his life in a studious privacy, composing many books, of which we have a catalogue in the Biographia Britannica. That Girald of Wales was a man of uncommon activity, genius, and learning, is undeniable; but these and his other good qualities were much tarnished by his insufferable vanity, which must have been as offensive to his contemporaries, as it is disgusting to his readers.

Barry (James, baron Santry), was also a descendant of the ancient princes of Wales. Being bred to the law, he was appointed king's serjeant for Ireland in 1629. In this station he was noticed by Lord Wentworth, afterwards earl of Strafford, who promoted him to be second baron of Exchequer in 1634. Barry was not ungrateful. In 1640, when the Irish parliament proposed sending over a committee to impeach Lord Strafford, he did his utmost to oppose the measure, though his efforts proved fruitless. During the commotion and revolution that followed, we hear nothing of Mr. Barry; but in 1660 he was appointed chairman of the Convention, which voted for the restoration of monarchy; and in the end of that year, king Charles II. showed his opinion of his services, by appointing him Lord Chief Justice of the King's Bench, and a privy counsellor, and creating him a peer of Ireland. He did not live to see a third revolution, for he died in 1672.

Barry, a hill of Scotland, in Angusshire, three miles north of Belmont, and 688 feet in height. Tradition says, that queen Guinever or Vanora, the wife of Arthur king of the Britons, was confined upon it, after having been taken prisoner in a battle between that prince and the Scots and Picts. Dr. Playfair has given the following particular account of this hill. 'Barry-hill, the supposed place of Vanora's confinement, merits some description. It is one of the Grampians, one mile and a half north-east of Alyth. It commands an extensive view of Strathmore, and of several remarkable hills in the Sidlaw range, viz. Dunsinnan, Kinpurnie, Sidlaw, Finhaven, &c. all of which might have been anciently used as watch towers, or places of defence. History informs us that the Picts kept possession of Dunbarry, and the adjacent country, from a remote period to the ninth century, or later; but the precise dates of their settlement in these parts, and of their expulsion, cannot be ascertained. The hill itself is of an oval form. Its summit was levelled into an area 180 feet long, and seventy-two or seventy-four broad. Around the area a mound of earth was raised, from six to eight feet high, and ten to twelve broad at top. On this mound a wall of free stone was built without any cement whatever. The

foundation of the wall was composed of rough granite, and still remains. It is of the same breadth with the summit of the mound; but the height of the wall cannot be known; Gordon's estimate of it is extremely erroneous. Among the ruins there are several pieces of vitrified stone; but these vitrifications must have been accidental, as they are few and inconsiderable. Along the west and north borders of the area, barracks, or huts, were built of dry stone, and sufficiently sheltered by the mound and wall; but no structures of this sort can be traced in the south part of the area. As the north and west sides of the hill are steep, and of difficult access, there was no need of an outer ditch in those quarters: but, towards the south and east, where the hill gently slopes, there is a ditch ten feet broad, and from twelve to sixteen feet below the foundation of the wall. At the south-east extremity of the fort, a narrow bridge was raised over the ditch, eighteen feet long, and two broad, except towards each end, where the breadth was increased. It was composed of stones laid together with much art and vitrified above, below, and on both sides; so that the whole mass was firmly cemented. That an opening was left below after the process was finished is doubtful. On the upper part of the bridge a stratum of gravel was laid, to render the passage smooth and easy. This is the sole part of the fort intentionally vitrified. A few yards distant from the ditch there is an outer wall, the foundation of which is about three feet lower than the summit of the mound. The approach to the fort is from the north-east, along the verge of a precipice; and the entrance was secured by a bulwark of stone, the ruins of which are extant. There is no vestige of a well within the fort; but westward, between the basis of the mound and the precipice, there was a deep pond or lake, recently filled up by the tenants in that neighbourhood. About a quarter of a mile eastward, on the declivity of the hill, there are some remains of another oval fort, of less extent than the preceding, consisting of a strong wall and ditch. Tradition says, that there was a subterranean communication between these forts, which is not improbable. From the account now given, it would appear, 1. That both were constructed before the Romans introduced the art of building with lime and other cement. 2. That the Picts and ancient Scots had stone edifices, which M'Pherson is not inclined to admit. 3. That they sometimes vitrified particular parts of their forts, to render them the more durable.

BARRY, Barra, or Bara, one of the western isles of Scotland, lying in the Atlantic Ocean; eight miles south from that of South Uist. Its extent has been strangely misrepresented, some stating it at five miles long and three broad, and others reducing it to a mere rock, half a mile in circumference, and inhabited only by solan geese and wild fowls! It is at least twelve English miles long, and from three to six broad; being intersected in different places by arms of the sea; separated from the island of Watersay, by a channel of one mile. It has a barren appearance, from the great quantity of rocks to be seen every where; but on the north end, in good seasons, it may vie in fertility with any ground of equal extent in Scotland. In the middle and south end there are very high hills, which are a mixture of green, rock and heath, and seem fitted for sheep-walks, if the island were near a good market. The west coast is low and flat; the soil, fine shell sand, in many parts very fertile; but the ground rises to the east coast, where it is barren, and breaks off abrupt, irregular, and steep. In some parts, where the soil is rocky and uneven, it admits not of being plowed; it is cultivated, therefore, by a kind of crooked spade, called cashroom. The inhabitants are about 1500. Long. 7° 30′ W., lat. 56° 55′ N.

Barry, a town of Ireland, in the county of Longford, fifty-four miles from Dublin.

Barry, a small island in the Bristol channel, near the south coast of Wales; distant three miles west of Flat Holm. Its name is said to be derived from a hermit, St. Baruch, who died there in 700. Giraldus Cambrensis states, that in a rock near the entrance of the island there is a small cavity, to which, if the ear be applied, a noise is heard like that of smiths at work, the blowing of bellows, strokes of hammers, grinding of tools, and roaring of furnaces,' and Sir Richard Hoare adds, that towards the southern part of the island, on a spot, called Nell's point, is a fine well, to which great numbers of women resort on Holy Thursday: having washed their eyes at the spring, each drops a pin into it. The landlord of the boarding-house (for the island is frequented by bathers) informed Sir Richard Hoare, that in the last cleaning of the well he took out a pint of these votive offerings.

Barry, in heraldry, is when an escutcheon is divided bar-ways, that is, across from side to side, into an even number of partitions, consisting of two or more tinctures, interchangeably disposed. It is to be expressed in the blazon by the word barry, and the number of pieces must be specified; but if the divisions be odd, the field must be first named, and the number of bars expressed.

Barry-bendy is when an escutcheon is divided evenly, bar and bendways, by lines drawn transverse and diagonal, interchangeably varying the tinctures of which it consists, thus:

Barry-pily, is when a coat is divided by several lines drawn obliquely from side to side, where they form acute angles, thus:

BARSA, in ancient geography, an island on the coast of France, in the English channel; now called Basepool, according to some; according to others, Bardsey.

BARSABAS; from בר, a son, and אבא, a name of Joseph, surnamed Justus, who was competitor with Matthias for the apostleship, and is said to have been one of the seventy disciples.

Barsabas (Judas), a member of the same

Jerusalem, who was sent with Paul, Barnabas, and Silas, to publish their decree against the Judaising teachers among the Gentile churches at Antioch. He is also styled a prophet: Acts xv. 32.

BARSAC, a town of France, in Guienne, in the Bourdelois, on the left bank of the Garonne; contains 480 houses, and belongs to the department of the Gironde, arrondissement of Bourdeaux, eighteen miles south-east of Bourdeaux. It is noted for its excellent wine.

BARSALLACH, Point, a cape of Scotland, on the coast of the county of Wigton, in the bay of Luce, eight miles north-west of Burrowhead. Long. 4° 35′ 17″ W., lat. 54° 48′ N.

BARSALLI, or Barsallo, a kingdom of Africa, bordering on the Gambia, inhabited by a tribe of negroes called Jaloffs. Their government is a despotic monarchy; all people being obliged to prostrate themselves on the earth when any of the royal family makes his appearance. It is divided in to a number of provinces, over which governors are appointed, called bumeys. The Mahommedan is the professed religion, but little regard is paid to that part of the impostor's laws which forbids the use of wine; for the king cannot live without brandy; nor is he ever more devout than when he is intoxicated. When he wants a fresh supply of this liquor, or of any other commodity, he seizes a certain number of his subjects, and sells them as slaves.

BARSANIANI, in church history, a sect who held the errors of the Severians and Theodosians.

BARSANTI (Francisco), an eminent musical performer and composer, was born at Lucca about 1690. He studied the civil law in the university of Padua; but after a short stay there preferred music, and put himself under the tuition of some of the ablest masters in Italy. Having attained to a considerable degree of proficiency in practical composition, he resolved to settle in England, and came hither with Geminiani, in 1714. He was a good performer on the hautboy and flute. He was many years a performer at the opera-house; and at last went to Scotland, where he improved the music of that country, by making basses to a great number of the most popular Scots tunes. About 1750 he returned to England; but, being advanced in years, he went into the opera band as a performer on the tenor violin; and in the summer season into that of Vauxhall. At this time he published twelve concertos for violins; and shortly after, Sei Antifone, in which he endeavoured to imitate the style of Palestrina, and the old composers of motets; but so little profit resulted, that, towards the end of his life, the industry and economy of an excellent wife, whom he had married in Scotland, and the labors of a daughter whom he had qualified for a singer, but who afterwards became an actress at Covent Garden, were his chief supports. Miss Barsanti went on the stage in consequence of her entirely losing her singing voice by catching cold. Colman engaged her as a comic actress for the Haymarket theatre, and she gained great applause. She afterwards went to Ireland, became a favorite there, and married Mr. Daly, the manager of the Dublin theatre.

BARSE, in ichthyology, an English name for the pearch, still used for the same fish in the Saxon language, and one of the many Saxon words we have retained.

BARSICK, a head land on the coast of the island of South Ronaldshay, one of the Orkneys, which is 250 feet perpendicular above the level of the sea.

BAR-SUR-AUBE. See Bar.

Bap-sur-seine. See Bar.

BA'RTER, *v.* & *n.* } Fr. *barater*; Ital. *barratare*; Span. *barrator*, from *barat*, craft, fraud. It is now, however, no longer used in this ill sense. It signifies a particular mode of exchange. Exchange is the general term signifying to take one for another. To barter is to exchange one article of trade for another. The words that bear a near affinity to this are truck and commute; but their precise difference is this: truck is a familiar term to express a familiar action for exchanging one article of private property for another; and commute is applied to the exchanging one mode of punishment for another. We may exchange one book for another; traders *barter* trinkets for gold-dust; coachmen truck a whip for a handkerchief; government commutes the punishment of death for that of banishment.

BAR'TERER, } Fr. *barater*; Ital. *barratare*; Span. *barrator*, from *barat*, craft, fraud.

BAR'TERY. }

> For him was I exchang'd and ransom'd;
> But with a baser man of arms by far
> Once, in contempt, they would have *barter*'d me.
> *Shakspeare.*

From England they may be furnished with such things as they may want, and in exchange or *barter* send other things with which they may abound. *Bacon.*

> As if they scorn'd to trade and *barter*,
> By giving or by taking quarter. *Hudibras.*

A man has not every thing growing upon his soil, and therefore is willing to *barter* with his neighbour. *Collier.*

I see nothing left us, but to truck and *barter* our goods, like the wild Indians, with each other. *Swift.*

He who corrupteth English with foreign words, is as wise as ladies that exchange plate for china; for which the laudable traffick of old clothes is much the fairest *barter*. *Felton.*

It is a received opinion, that, in most ancient ages, there was only *bartery* or exchange of commodities amongst most nations. *Camden's Rem.*

> Then as thou wilt dispose the rest,
> To those who, at the market rate,
> Can *barter* honour for estate. *Prior.*

If they will *barter* away their time, methinks they should at least have some ease in exchange. *Decay of Piety.*

He also *bartered* away plums, that would have rotted in a week, for nuts that would last good for his eating a whole year. *Locke.*

At the same time those very men tear their lungs in vending a drug, and show no act of bounty, except it be that they lower a demand of a crown to six, nay to one penny. We have a contempt for such paltry *barterers*. *Tatler.* No. 4.

The most ancient and most obvious sort of commercial contract is *barter*, or the exchange of goods for goods. But, where there is no other sort of commerce, contracts of *barter* must be liable to great inequalities. *Beattie. Moral Science*

Some men are willing to *barter* their blood for lucre. *Burke.*

BARTER. See ARITHMETIC, Index.

BARTH, or BART (John), a French admiral, born at Dunkirk in 1651. He left his father, who was a poor fisherman, and entered into the navy, where he distinguished himself by his valor. Having, in 1692, obtained the command of a squadron of frigates and a fire ship, he destroyed eighty-six English merchant ships, made a descent on the English coast, near Newcastle, where he set fire to several houses, and returned to Dunkirk with prizes valued at 500,000 crowns. In 1696 he was appointed with a squadron of six ships, to convoy a fleet laden with corn, and before he fell in with it, it had been captured by a Dutch squadron of eight men of war. Though his numbers and strength were so much less, he not only retook the prizes, but the war ships. For this action a patent of nobility was granted him. He died at Dunkirk in 1702.

BARTHELEMY (John James), a celebrated French writer, born at Cassis, in Provence, in 1716. He was sent to school at Marseilles, and admitted into the college of the Oratory, where his promising genius was discovered, and encouraged, so that he made a rapid progress in learning. But his design being for the church, it was necessary for him to leave the Oratory, and go for philosophy and theology to the Jesuits. Here he acquired, more by his own labor and perseverance than by the instructions of the professors, a knowledge of the Greek, Hebrew, Chaldean, Syriac, and Arabic languages. Before Barthelemy left Marseilles, and when about twenty-one years of age, the merchants of that city having met with a Jew boasting of his learning, and wishing trial to be made, by introducing him to some learned man, with some difficulty got him to engage with the Jew; and Barthelemy came off with the character of a prodigy of oriental learning. After finishing his education at the seminary, he retired to Aubagne, and spent some time with his family, by whom he was highly esteemed. But he often visited Marseilles, for the company of learned men; and he was particularly taken up with one M. Cary, who had a fine cabinet of medals and an extensive library. He also associated himself with Father Sigaloux, in making astronomical observations. At last, however, he resolved to devote himself to literature, and accordingly went to Paris in 1744. He was recommended to M. de Boze, keeper of the medals, and secretary of inscriptions and belles lettres, who received him kindly, and paid him every possible attention; and, in a short time, on account of the age and infirmity of M. de Boze, Barthelemy was chosen his assistant in the care of the cabinet of medals; in arranging which he labored incessantly. Sometime after he was nominated secretary to the academy of inscriptions; and on the death of his colleague M. de Boze, in 1753, he succeeded him as keeper of the cabinet. In 1755 he visited Rome and Naples; the latter being then peculiarly interesting to an antiquarian by the recent discoveries in its neighbourhood. Here, among the numberless curiosities that drew his attention, the manuscripts saved from the ruins of Herculaneum were particularly noticed; and he was anxious to have a specimen of the ancient writing in the Greek MSS. but those who had the care of them, from their injunctions, could not gratify him. On this he begged a sight of a page for a few minutes. It contained twenty-eight lines, which he read over attentively, and, retiring to a corner, transcribed the whole, and sent the fac simile to the academy of belles lettres. About the end of 1758, the duke de Choiseul, having been appointed minister for foreign affairs, gave him a pension of £250, and in 1765 conferred on him the treasurership of St. Martin de Tours; to which in 1758, he added the place of secretary-general to the Swiss guards In 1768 appeared his great work, the fruit of thirty years labor, entitled, The Voyage of the younger Anacharsis in Greece; in which the traveller gives an account of the customs, government, and antiquities of the country he visited; remarks on the music of the Greeks, on the library of the Athenians, and on the customs of all the surrounding states. In 1789 Barthelemy became a candidate for a chair in the French academy; and so great was the reputation he had gained by his writings, that this learned body elected him by acclamation. The speech he delivered on the occasion, for modesty and simplicity, is deservedly celebrated. In consequence of the revolution, he was reduced to a pittance merely sufficient to furnish the necessaries of life; yet, in 1790, when M. de St. Priest offered him the place of librarian to the king, he expressed his gratitude, but declined accepting, lest it should interfere with his occupations in the cabinet, which he still continued to enrich. In 1792 his strength began to fail, and, in 1793, now a feeble old man, he was arrested as an aristocrat, and hurried to prison; but was liberated the same night, by order of the committee. He died in 1795, regretted by all his relations as their common father. Besides his Anacharsis, he was author of many papers, principally on medals, in the collection of the academy of inscriptions, &c.

BARTHELEMY (ST.), a town of France, in the department of the Lot and Garonne, arrondissement of Marmande, with 2300 inhabitants. Nine miles east of Marmande, and twenty-four northwest of Agen.

BARTHIUS (Gaspar), a learned and copious writer, born at Custrin, in Brandenburg, in 1576. Mr. Baillet, in his Enfans Celebres, tells us, that at twelve years of age he translated David's Psalms into Latin verse of every measure, and published several Latin poems. Upon the death of his father (who was professor of civil law at Frankfort, counsellor to the elector of Brandenburg, and his chancellor at Custrin), he was sent to Gotha, then to Eisenach, and afterwards, according to custom, went through all the different universities in Germany. He afterwards visited Italy, France, Spain, England, and Holland, improving himself by the conversation and works of the learned in every country. He studied also the modern languages, and his translations from the Spanish and French show that he was not content with a superficial knowledge. Upon his return to Germany he led a retired life at Leipsic, his passion for study having made him renounce all sort of employment. He wrote a vast number of books; the principal of which are, 1. Adversaria, a large volume in folio; the second and third volumes of which he left in

MS. 2. A Translation of Æneas Gazæus. 3. A large volume of Notes upon Claudian, in 4to. 4. Three large volumes upon Statius, &c. He died at Leipsic, in 1658, aged seventy-one.

BARTHOLINA, in botany, a genus of plants, named after the naturalist Bartholinus. Class and order, gynandria monogynia. Natural order, orchideæ. Essential character: CAL. tubular at the base: PET. united to the base of the lip, whose spur is shorter than the germen. Stalks of the pollen elongated; their cells laterally fixed; glands distinct, half covered by the exterior lobe. The principal species is, B. pectinata. Fringed bartholina.

BARTHOLINUS (Gaspar), a learned physician and anatomist of the seventeenth century, born at Malmoe, in Schonen, which then belonged to Denmark. At three years of age he had such a quick capacity, that in fourteen days he learned to read; and, in his 13th year, he composed Greek and Latin orations, and pronounced them in public. When he was about eighteen he went to the university of Copenhagen, and afterwards studied at Rostock and Wittemberg. He afterwards travelled, and neglected no opportunity of improving himself at the different universities which he visited. He was, in 1613, chosen professor of physic in that university, which he enjoyed eleven years; when, falling into a dangerous illness, he made a vow, that if it should please God to restore him, he would solely apply himself to the study of divinity. He recovered and kept his word; and soon after obtained the professorship of divinity, and the canonry of Roschild. He died in 1629, having written several small works, chiefly on metaphysics, logic, and rhetoric.

BARTHOLINUS (Thomas), a celebrated physician, son of the former, born at Copenhagen, in 1616. After studying some years in his own country, he, in 1637, went to Leyden, where he studied physic three years. He then travelled into France; and resided two years at Paris and Montpelier, for improvement. Afterwards going to Italy, he continued three years at Padua; and at length went to Basil, where he obtained the degree of doctor of philosophy. Soon after, he returned to Copenhagen; where, in 1647, he was appointed professor of mathematics; and, in 1648, of anatomy, a branch better suited to his genius and inclination; which he discharged with great assiduity for thirteen years, and distinguished himself by making several discoveries with respect to the lacteal veins and lymphatic vessels. His close application, however, having rendered his constitution very infirm, he, in 1661, resigned his chair; but the king of Denmark allowed him the title of honorary professor. He now retired to a little estate he had purchased at Hagested, near Copenhagen, where he hoped to have spent the remainder of his days in peace and tranquillity; but his house being burnt in 1670, his library, with all his books and MSS. was destroyed. In consideration of this loss the king appointed him his physician, with a handsome salary, and exempted his land from all taxes; the university of Copenhagen also appointed him their librarian; and, in 1675, the king did him the honor to give him a seat in the grand council of Denmark. He wrote, 1. Anatomia Caspari Bartholini Parentis, novis Observationibus primum locupletata. 8vo. 2. De Monstris in Natura et Medicina, 4to. 3. De Armillis Veterum, 8vo; and several other works. This great man died in 1680.

BARTHOLOMEW (St.); from בר, a son, חלה, elevating, and מים, waters; one of the twelve Apostles, and generally believed to be the same with Nathanael, for the following reasons; 1. John never mentions Bartholomew but Nathanael; 2. the other Evangelists never mention Nathanael but Bartholomew: 3. John classes Philip and Nathanael, as the others do Philip and Bartholomew: 4. Nathanael is mentioned with the other apostles that met our Lord, after his resurrection, at the sea of Tiberias: and 5. Bartholomew is not a proper name, but a patronymic signifying the son of Tolmai or Thilomæus; a mode of denomination common among the Hebrews, and other ancient nations (see BARJONAS), and which still prevails in some modern nations; for instance in Russia, where Petrowitz, Alexiowitz, Alexandrowitz, &c. signify, the son of Peter, Alexis, Alexander, &c. It is said that this apostle travelled as far as India, to propagate the gospel: and Eusebius relates, that a famous philosopher and Christian, named Pantænus, desiring to imitate the apostolical zeal in propagating the faith, and travelling for that purpose as far as India, found there, among those who yet retained the knowledge of Christ, the gospel of St. Matthew, written by St. Bartholomew. From thence he returned to the more northern and western parts of Asia, and preached to the people of Hierapolis; then in Lycaonia; and lastly, at Albania, a city upon the Caspian Sea,; where his endeavours to reclaim the people from idolatry were crowned with martyrdom, he being flead alive, and crucified with his head downwards.

BARTHOLOMEW, CAPE, the southernmost point of Staten-Land, in Le Maire straits, at the south extremity of South America.

BARTHOLOMEW, ST., one of the Caribbee islands, to which, in 1748, a colony was sent by the French, by whom it was ceded to Sweden in 1785. It is reckoned about fifteen miles in circumference, and is now the only island which Sweden possesses in the Columbian Archipelago. It is very fertile, producing sugar, tobacco, cotton, indigo, and cassava, but having no water, except what is supplied by the rains, is not much resorted to. Many of the trees are valuable; the aloe is held in high estimation, and there are others from which a gum of excellent cathartic qualities is extracted. The branches of the parotane growing downwards, take root and rise in fresh stems; forming an almost impenetrable barrier. The species called sea trees, line many parts of the shore. The island also produces lignum vitæ and iron-wood; and a great variety of birds. The inhabitants also export a peculiar kind of lime-stone. The coast is surrounded with rocks, and cannot be safely approached without a pilot; but it has a very capacious and well-sheltered harbour, capable of receiving and sheltering the largest ships. About half the inhabitants are Irish Roman Catholics, whose ancestors settled here in 1666.

BARTHOLOMEW, ST. a river of South America,

in the province of Antioquia, which falls into the Madalena.

BARTHOLOMEW (ST.), one of the islands of the New Hebrides, in the South Pacific, three leagues from the north-west point of Mallicolo, from which it is separated by a channel, called Bougainville's passage. It is from six to seven leagues in circumference. Long. 169° 23′ E., lat. 15° 41′ S.

BARTHOLOMEW'S DAY (ST.), a festival of the Church, celebrated on the 24th of August. This day has been rendered infamous in the annals of France, for the massacre of the protestants in 1572, by the order of the bloody Catharine de Medicis, and her tyrannical son, Charles IX.

On Bartholomew's day also, in the year 1662, the act of uniformity, which obtained the royal assent on the 19th of May, took place, in consequence of which about 2000 ministers relinquished their preferments in the church of England. The liturgy, with its alterations, came out of the press on Bartholomew eve, and the following day was the ultimate time fixed by the act for the subscription; so that all those throughout the kingdom who conformed, except a few in London, subscribed in ignorance of its contents.

'Bartholomew's day,' says Mr. Locke, 'was fatal to our church and religion, by throwing out a very great number (about two thousand) of worthy, learned, pious, orthodox divines, who could not come up to this oath, and other things in that act. And so great was the zeal in carrying on this church affair, and so blind the obedience required, that if you compute the time of passing this act with that allowed for the clergy to subscribe the book of common prayer thereby established, you will find it could not be printed and distributed so as that one man in forty could have seen and read the book they did so perfectly assent and consent to.'—'The matter was driven on,' says bishop Burnet (Hist. of his Times, vol. i. p. 212, 8vo.) 'with so much precipitation, that it seemed expected the clergy should subscribe implicitly to a book they had never seen. This was done by too many, as the bishops themselves informed me.' Among these were several, who, according to Mr. Locke's description of them, were 'taught rather to obey than to understand.'

BARTHOLOMEW'S GOSPEL (ST.), is mentioned in the preface to Origen's Homilies on St. Luke, and in the preface to St. Jerome's commentary on St. Matthew; but generally regarded as spurious; and placed by pope Gelasius among the apocryphal books.

BARTHOLOMEW'S HOSPITAL (ST.), an institution for the reception of sick and wounded poor persons, situated on the south-east side of Smithfield, and incorporated by the name of the hospital of the mayor, commonalty, and citizens, of London, governors for the poor, called Little St. Bartholomew's, near West Smithfield. The building formerly belonged to the priory of St. Bartholomew, in Smithfield, founded by one Rahere, about 1102. At the dissolution of the monasteries, Henry VIII. left 500 marks a year to it, on condition that the city should add 500 marks per annum for the relief of the sick and poor people; but it was more largely endowed for the benefit of sick and lame persons only, by Edward VI. and the munificence of the city and private benefactors. This hospital having escaped the dreadful fire in 1666, was repaired and beautified by the governors in 1691. But the buildings became at length so ruinous, that a subscription was entered into in 1729, for defraying the expense of rebuilding it, on a plan comprehending four detached piles of building, to be joined by stone gate-ways, about a court or area. The four piles were erected and finished; one of these piles contains a large hall for the governors at general courts, a counting-house for the committees, and other necessary offices; the other three piles contain wards for the reception of the patients, &c. It is governed by a president, treasurer, &c. It is attended by three physicians, and three surgeons, besides as many assistant surgeons. It has an apothecary, a chaplain, cook, steward, renter, matron, and porter. Since its enlargement, it is capable of accommodating 820 patients; it extends relief also to a great number of out-patients.

BARTHOLOMITES, a religious order, founded at Genoa in 1307; the monks leading very irregular lives, the order was suppressed by pope Innocent X. in 1650, and their effects confiscated. In the church of the monastery of this order at Genoa, is preserved the image which it is pretended Christ sent to king Abgarus.

BARTLEMAN (J.), a very celebrated bass-singer, was educated under Dr. Cooke, and brought up in the choirs of the Chapel Royal and Westminster abbey. His first appearance as a professional singer was at the concerts at Freemasons' Hall, where the compass and sweetness of his fine baritone voice raised him at once to the top of his profession. He was immediately engaged in the ancient concerts, and became eventually one of the proprietors and conductors at the Hanover-square rooms. He died in 1820, and was buried in the cloisters of Westminster Abbey, most of his professional associates of eminence attending the funeral. There is a handsome tablet erected there to his memory.

BARTOLOCCI (Julius), a learned monk, and professor of Hebrew at Rome, was born at Celano, in 1613; and distinguished himself by writing an excellent Latin catalogue of the Hebrew writers, in 4 vols. folio; a continuation of which was drawn up by Imbonati his disciple. He died in 1687.

BARTOLOMEO (Francisco), whose real name was Baccio, a celebrated painter, born at Savignano, near Florence, in 1469. He was the disciple of Cosimo Rosselli, but owed to the works of Leonardo da Vinci his extraordinary skill in painting. Raphael, after quitting the school of Perugino, studied perspective under him, with the art of managing and uniting colors. In 1500 he turned Dominican friar; and some time after was sent by his superiors to the convent of St. Martin, in Florence. He painted both portraits and histories: but his scrupulous conscience would hardly ever suffer him to draw naked figures, though nobody understood them better. He died in 1517, aged 48.

BARTOLOZZI (Francis), an eminent engraver, was born at Florence in 1728. His father was a silversmith, and he was intended for the

same business, but displayed so much taste and execution at the first handling of the graver, that he was placed at the Florentian academy, under Gaetano Biagio and Ignazio Hugford. Here Giovanni Cipriani was his fellow-pupil. He was subsequently articled to Joseph Wagner, of Venice, who employed him too much in copying from inferior masters. When this engagement was expired, he married a respectable Venetian lady, and accepted the invitation of cardinal Bottari to repair to Rome. Here he engraved his fine plates from the life of St. Nilus, and the heads of painters for a new edition of Vasari. He returned to Venice, where Mr. Dalton, librarian to George III. employed him to engrave some of the drawings of Guercino, and, pleased with the execution of them, offered him £300 per annum to accompany him to England, and work on his account. Under this engagement he completed his beautiful collection of Guercinos. Afterwards he worked on his own account, and for Mr. Alderman Boydell. He was highly distinguished for the elegance of his designs for the benefit tickets of the higher performers of the Opera-house; and hearing that the celebrated Strange said he could execute nothing else, in a fit of emulation he produced his Clytie, and Virgin and Child, from Carracci and Carlo Dolci. About this time the red dotted or chalk manner became prevalent; and Bartolozzi contrived to execute it so beautifully as to assist in seducing the public taste from the superior and legitimate style of the line. He was elected a member of the Royal Academy, on its institution. In 1802 he accepted an invitation from the Prince Regent of Portugal, to superintend a school of engravers at Lisbon, with a pension of £100 per annum, a handsome house, and the produce of the engravings. It is said a pension of £400 was offered to him to remain in England; but that he would accept it only on condition that government would explain the matter to the prince Regent of Portugal. It is quite clear that all his past labors had left him in real need of one appointment or other. This interference being deemed improper, he bade England farewell, in his seventy-fifth year, and was received at Lisbon with great distinction. He died in that capital in his eighty-eighth year. Few artists have reached so distinguished a rank in every species of engraving, as Bartolozzi. His etchings in imitation of the drawings of the great masters, admirably represent the character and spirit of the originals; and his Marlborough gems, musical tickets, and prints for Boydell's Shakspeare, exhibit exquisite proofs of taste. He was so generous as to finish a plate left incomplete by Ryland, at the request of that unhappy man, while under sentence of death for forgery, and exhibited many other traits of a humane and benevolent united with a thoughtless character. Among the pupils of Bartolozzi were Sherwin, Tomkins, Cheeseman, and the two Vandramini.

BARTON-ON-HUMBER, a market-town and parish in the hundred of Yarborough, and county of Lincoln, 167 miles north from London; containing 2500 inhabitants. It is seated on the south side of the Humber, over which there is a ferry into Yorkshire, nearly six miles and a half across. There is a great trade in corn and flour, as well as bricks and tiles, carried on, and a manufactory of Paris whiting. The town consists of several streets irregularly built, and has two parish churches, the livings of the two parishes being united. Market on Monday.

BARTON (Eliz.), commonly called The Maid of Kent, was a religious impostor in the reign of Henry VIII. She was originally a servant at Aldington, in Kent, who had long been troubled with convulsions, which distorted her limbs and countenance, and threw her body into the most violent agitations. After she recovered, she is said to have counterfeited the same appearances. Masters, the minister of Aldington, with other ecclesiastics, thinking her a proper instrument for their purpose, persuaded her to pretend that what she said and did was by a supernatural impulse, and taught her to act her part in the most perfect manner. Thus she would lie as it were in a trance, then, coming to herself, would break out into pious ejaculations, hymns, and prayer; sometimes delivering set speeches, sometimes uncouth monkish rhymes. She pretended to be honored with visions and revelations, to hear heavenly voices, and the most ravishing melody. Amongst other wickedness of the times, she declaimed against heresy and innovations; exhorting the people to frequent the church, to hear masses, to use frequent confession, and to pray to our lady, and the saints. This artful management, together with her great exterior piety, and austerity of life, not only deceived the vulgar, but the celebrated Sir Thomas More, bishop Fisher, archbishop Warkam, &c.: the last of whom appointed commissioners to examine her. She now declared, that the blessed Virgin had appeared to her, and assured her that she should never recover, till she went to visit her image, in a chapel of the parish of Aldington. Thither she accordingly repaired, processionally, and in pilgrimage, attended by above 3000 people, and many persons of quality of both sexes. She fell into one of her trances, and uttered many things in honor of the saints, and the popish religion: for herself, she said that by the inspiration of God, she was called to be a nun, and that Dr. Bocking was her ghostly father. Bocking was a canon of Christ's church, Canterbury, and most probably associate in carrying on the imposture. Meanwhile, the archbishop ordered her to be admitted into the nunnery of St. Sepulchre, Canterbury; where she had frequent inspirations and visions, and pretended to work miracles for all such as would make a profitable vow to our lady. The priests, her managers, having so far succeeded, now announced the great object of her mission, i. e. to proclaim, that 'in case the king should divorce queen Catherine of Arragon, and take another wife during her life, his royalty would not be of a month's duration, but he should die the death of a villain.' Bishop Fisher, and others in the interest of the queen, and of the Romish religion, hearing of this, held frequent meetings with the nun, the fathers and nuns of Sion, the Charter-house, Sheen, &c. Encouraged by the lenity of the government, the ecclesiastics in this conspiracy resolved to publish the revelations of the nun, in their sermons, throughout

the kingdom: they had communicated them to the pope's ambassadors, to whom also they introduced the maid of Kent; and they exhorted queen Catherine to persist in her resolutions. At length this confederacy began to be a very serious affair, and Henry ordered the maid and her accomplices to be examined in the star-chamber. Here they confessed all the particulars of the imposture, and afterwards appeared upon a scaffold erected at St. Paul's Cross, where the articles of their confession were publicly read in their hearing. Thence they were conveyed to the Tower, until the meeting of parliament; who, having considered the affair, pronounced it a conspiracy against the king's life and crown. The nun, with her confederates, Masters, Bocking, Deering, Able, &c. were attainted of high treason, and executed at Tyburn, April 20, 1534; where she confessed the imposture, laying the blame on her accomplices the priests, and craving pardon of God and the king.

BARTRAMIA, in botany, pellitory: a genus of the decandria monogynia class of plants; the calyx of which is a perianthium, cut into five parts; the corolla consists of five wedge-shaped petals; the fruit is globular, and the seeds are four in number, convex on one side, and angular on the other. It was so named in honor of a friend of Linnæus, J. Bartram. Eight species are described in English Botany.

BARTSIA, in botany, a genus of plants, named after Linnæus' unfortunate friend, John Bartsch, MD. Class didynamia; order angiospermia. Its generic characters are, CAL. perianth one-leaved: COR. monopetalous: STAM. filaments four: ANTH. oblong: PIST. germ ovate; style filiform; stigma obtuse: PER. capsule ovate: SEEDS numerous. The species are mostly perennials, as—B. coccinea, pedicularis, seu crista galli, &c. seu horminum, &c. Red bartsia, native of Virginia. B. pallida foliis alternis, &c. seu foliis lanceolatis, &c. Pale-flowered bartsia, native of Siberia. B. alpina foliis oppositis, &c. Staehelinia foliis, &c. Staehelinia alpina, euphrasia caule, &c. Euphrasia rubra, &c. Chamædry vulgare, &c. Clinopodium alpinum, &c. Teucrium alpinum, cratæogonon, seu pedicularis. Alpine bartsia, native of Britain; but the B. viscosa, euphrasia latifolia, seu alectorophos, &c. Viscid bartsia, or yellow marsh eye-bright, native of Britain, is an annual. B. viscosa, marshy, or yellow marsh eye-bright, was found by Mr. Lightfoot in bogs and marshy places about Loch-Goyl, near Loch-Long, in the district of Cowal in Argyllshire. The plant is about ten or twelve inches high, with an erect stalk, downy and unbranched: the leaves are sessile, spear-shaped, and a little viscous; the flowers are yellow, and the plant dyes black. It is likewise found in marshy places in Cornwall in England.

BARUCH, the son of Neriah, the disciple and amanuensis of the prophet Jeremiah. Josephus tells us he was descended of a noble family: it is said in his prophecy that he wrote it at Babylon, but at what time is uncertain.

BARUCH'S PROPHECY, one of the apocryphal books subjoined to the canon of the Old Testament. It has been reckoned part of Jeremiah's prophecy, and is often cited by the ancient fathers as such. It is difficult to determine in what language it was originally written. There are three copies of it extant; one in Greek, the other two in Syriac.

BARULES, in church history, heretics who held that the Son of God had only a phantom of a body, that souls were created before the world, and that they lived all at one time.

BARUTH, an ancient town of Turkey, in Syria, with a Christian church of the Nestorian persuasion. It is situated in a fine fertile soil, but is inconsiderable now to what it was formerly.

BARUTH, an Indian measure, containing seventeen gantans: it ought to weigh about three pounds and a half English avoirdupois.

BARWICK (John), an English divine of the seventeenth century, was born at Wetherslack in Westmoreland, in 1612. He studied at Cambridge, where he took his degrees of B. A. and M. A, in 1635 and 1638. When the civil war broke out he conveyed the university's plate, by their order, through bye roads to supply the king, who was then in great necessity. Through this, and other acts of loyalty, having rendered himself obnoxious to the parliament, particularly by keeping up a secret correspondence with the royal party, both before and after the king's death, he was at last committed to the tower, where he suffered great hardships for fifteen months, but was at last discharged, 1652, and, to the surprise of many, in better health than when he was incarcerated. Upon the restoration he was made dean of St. Paul's in 1661; in which station he repeatedly hurt his health, by his exertion in putting in order the archives of that church. He died of a pleurisy in 1664. His chief work was a Treatise Against the Covenant, which he published before the king's death.

BARWICK (Peter), physician to king Charles II. brother of the dean, was born in 1619, and studied also at Cambridge, where he took the degree of M. D. in 1655. Having settled in London, he soon rose to fame in his profession, by writing a defence of Dr. Harvey's discovery of the circulation of the blood. He was equally active and useful during the plague, and was no less successful in curing the small pox. He not only gave advice and medicines gratis to the poor, but also supplied their other necessities. He was particularly kind to the sufferers for royalty. He wrote the life of his brother in Latin, in 1671, which he deposited in the college library at Cambridge, and in 1693, when in his seventy-fourth year, added an appendix in defence of the Εικον Βασιλικη of king Charles I. He died in 1705, aged eighty-six.

BARYPYCNI; βαρυπυκνοι; in the ancient music, such chords as formed the gravest notes of the several spissa. There were five barypycni in the scale. See PYCNI.

BARYTES, in chemistry, a genus of earths, which by Bergman, Lavoisier, and other eminent chemists, has been considered as a refractory metallic oxyd. This supposition has been confirmed by the experiments of Berzelius and Pontin, who, led by Sir H. Davy's decomposition of potash and soda by galvanism, subjected the earth to the same agent. Their experiments were

attended with complete success, and have been since verified by Sir H. Davy himself. To this metallic basis Davy gave the name of BARIUM, which see.

'Pure barytes,' says Dr. Ure, 'is best obtained by igniting, in a covered crucible, the pure crystallised nitrate of barytes. It is procured in the state of hydrate by adding caustic potash or soda to a solution of the muriate or nitrate. And barytes, slightly colored with charcoal, may be obtained by strongly igniting the carbonate and charcoal mixed together in fine powder. Barytes obtained from the ignited nitrate is of a whitish-gray color; more caustic than strontites, or perhaps even lime. It renders the syrup of violets green, and the infusion of turmeric red. Its specific gravity by Fourcroy is 4. When water in small quantity is poured on the dry earth it slakes like quicklime, but perhaps with evolution of more heat. When swallowed it acts as a violent poison. It is destitute of smell. When pure barytes is exposed in a porcelain tube, at a heat verging on ignition, to a stream of dry oxygen gas, it absorb the gas rapidly, and passes to the state of deutoxide of barium. But when it is calcined, in contact with atmospheric air, we obtain at first this deutoxide and carbonate of barytes; the former of which passes very slowly into the latter, by absorption of carbonic acid from the atmosphere.'

Again—'water at 50°, Fahrenheit, dissolves one-twentieth of its weight of barytes, and at 212° about one-half of its weight; though M. Thenard, in a table, has stated it at only one-tenth. As the solution cools, hexagonal prisms, terminated at each extremity with a four-sided pyramid, form. These crystals are often attached to one another, so as to imitate the leaves of fern. Sometimes they are deposited in cubes. They contain about 53 per cent. of water, or 20 prime proportions. The supernatant liquid is barytes water. It is colorless, acrid, and caustic. It acts powerfully on the vegetable purples and yellows. Exposed to the air it attracts carbonic acid, and the dissolved barytes is converted into carbonate, which falls down in insoluble crusts. It appears from the experiments of M. Berthollet that heat alone cannot deprive the crystallised hydrate of its water. After exposure to a red heat, when it fuses like potash, a proportion of water remains in combination. This quantity is 1 prime equivalent = 1·125, to 9·75 of barytes. The ignited hydrate is a solid of a whitish-gray color, caustic, and very dense. It fuses at a heat a little under a cherry red; is fixed in the fire; attracts, but slowly, carbonic acid from the atmosphere. It yields carburetted hydrogen, and carbonate of barytes when heated along with charcoal, provided this be not in excess.'

'Sulphur combines with barytes, when they are mixed together, and heated in a crucible. The same compound is more economically obtained by igniting a mixture of sulphate of barytes and charcoal in fine powder. This sulphuret is of a reddish-yellow color, and when dry without smell. When this substance is put to hot water a powerful action is manifested. The water is decomposed, and two new products are formed; namely, hydrosulphuret, and hydroguretted sulphuret of barytes. The first crystallises as the liquid cools; the second remains dissolved. The hydrosulphuret is a compound of 9·75 of barytes with 2·125 sulphuretted hydrogen. Its crystals should be quickly separated by filtration, and dried by pressure between the folds of porous paper. They are white scales, have a silky lustre, are soluble in water, and yield a solution having a greenish tinge. Its taste is acrid, sulphurous, and, when mixed with the hydroguretted sulphuret, eminently corrosive. It rapidly attracts oxygen from the atmosphere, and is converted into the sulphate of barytes. The hydroguretted sulphuret is a compound of 9·75 barytes with 4·125 bisulphuretted hydrogen; but contaminated with sulphite and hyposulphite in unknown proportions. The dry sulphuret consists probably of 2 sulphur + 9·75 barytes. The readiest way of obtaining barytes water is to boil the solution of the sulphuret with deutoxide of copper, which seizes the sulphur while the hydrogen flies off, and the barytes remains dissolved. Phosphuret of barytes may be easily formed by exposing the constituents together to heat in a glass tube. Their reciprocal action is so intense as to cause ignition. Like phosphuret of lime, it decomposes water, and causes the disengagement of phosphuretted hydrogen gas, which spontaneously inflames with contact of air. When sulphur is made to act on the deutoxide of barytes, sulphuric acid is formed, which unites to a portion of the earth into a sulphate.' Its salts are all, more or less, white and transparent: the soluble sulphates make, with the soluble salts of barytes, a precipitate insoluble in nitric acid; and they are all poisonous except the sulphate. See the respective ACIDS, for the most useful.

BARYTONO, in the Italian music, answers to our common pitch of bass.

BARYTONUM; from *βαρυς*, grave, and *τονος*, accent; in the Greek grammar, denotes a verb, which having no accent marked on the last syllable, a grave accent is to be understood.

BARZILLAI; from ברזל, iron, Heb.: 1. A Gileadite of Rogelim, who supplied David and his few faithful friends with provisions, while they lay at Mahanaim, during the usurpation of Absalom (2 Sam. xvii. 27—29); 2. A Simeonite of Meholah, the father of Adriel, one of Saul's sons-in-law (1 Sam. xviii. 19); 3. A priest who married a daughter of the hospitable Barzillai, and whose descendants returned from Babylon. Neh. vii. 63.

BAS, an island of France, on the coast of the department of Finisterre, to which department it belongs; it is about a league in length, and is situated two leagues north of St. Pal de Leon.

BAS (James Philip Le), a modern French engraver, by whom we have some excellent prints. His great force seems to lie in landscapes and small figures, which he executed in a superior manner. His style of engraving is extremely neat; he proves the freedom of the etching, and harmonizes the whole with the graver and dry point. We have also a variety of petty vignettes by this artist. He flourished about the middle of the

present century; but we have no account of the time of his birth or death.

BASAAL, in botany, an Indian tree which grows about Cochin.

BASALITES, a word used by Salmasius for Basaltes.

BASALT, Artificial, or black porcelain, a composition, having nearly the same properties with the natural basaltes, invented by Messrs. Wedgwood and Bentley, and applied to various purposes in their manufacture.

Basalt, or Basaltes; from basal, iron, or βασανιζω, diligenter examino; in natural history, a heavy, hard stone, chiefly black or green, consisting of prismatic crystals, the number of whose sides is uncertain. The English miners call it cockle; the German schoerl. It abounds in gigantic masses in every part of Europe, and is now regarded by mineralogists as one of the most remarkable species of trap rocks. Basaltes was originally found in columns in Ethiopia, and fragments of it in the river Tmolus, and some other places. We now have it frequently both in columns and small pieces, in Spain, Russia, Poland, near Dresden, and in Silesia; but the most magnificent ranges of basaltic columns in the world are those called the Giant's Causeway, in Ireland: and next to them, perhaps, those of Staffa, one of the western isles of Scotland. Great quantities of basalt are likewise found in the neighbourhood of Mount Ætna in Sicily, of Hecla in Iceland, of the volcano in the island of Bourbon, and in the ci-devant province of Vivarais in the south of France. It is found therefore in the neighbourhood of active volcanoes, and one of the great questions that geologists have agitated is, whether it does not always demonstrate the existence of some extinguished volcano in its vicinity.

The rocks of the Cyclops, in the neighbourhood of Ætna, exhibit very magnificent basaltic pillars. One is an island composed of lava, on a base of basalt, of no uncommon nature; above which there is a crust of pozzolana, combined with a certain white calcareous matter, hard and compact; and which, as it is composed by the action of the air, appears like a piece of knotty porous wood. That rock, at some former period, became so hard as to split; and the clefts were then filled up with a very hard and porous matter like scoriæ. This matter afterwards acquiring new hardness, also splits, leaving large interstices, which in their turn have been filled up with a species of compound yellow matter. The island was formerly inhabited; and there remains a flight of steps leading from the shore to the ruins of some houses, which appear to have been hewn in the rock. These basaltic columns, at first view, seem to resemble those of the Giant's Causeway, and others commonly met with: But on a nearer inspection, we find this difference, that the former are assembled in groups of five or six about one, which serves as their common centre, and are of various sizes and forms; some square, others hexagonal, heptagonal, or octagonal. It seems also peculiar to that neighbourhood, that some portions of the basaltic formation present the likeness of cannon or hollow cylinders, varying in their diameters from six inches to twenty feet; but these descriptions not being so well authenticated as some which we possess of basaltes nearer home, we may proceed to remark, that in Ireland the basalt forming the Giant's Causeway rises far up the country, runs into the sea, crosses at the bottom, and rises again on the opposite land. The immense pillars of it have been very particularly described and examined in a work entitled Letters concerning the northern coast of the county of Antrim; from which the following brief particulars are extracted:—'1. The pillars of the Causeway are small, not very much exceeding one foot in breadth, and thirty in length; sharply defined, neat in their articulation, with concave or convex terminations to each point. (Basaltes, fig. 5.) In many of the capes and hills they are of a larger size, more imperfect and irregular in their figure and articulation, having often flat terminations to their points. At Fairhead they are of a gigantic magnitude, sometimes exceeding five feet in breadth, and 100 in length; often apparently destitute of joints altogether. Through many parts of the country this species of stone is entirely rude and unformed, separating in loose blocks; in which state it resembles the stone known in Sweden by the name of trappe. 2. The pillars of the Giant's Causeway stood on the level of the beach, whence they may be traced through all degrees of elevation to the summit of the highest grounds in the neighbourhood. 3. At the Causeway, and in most other places, they stand perpendicular to the horizon. In some of the capes, and particularly near Ushet harbour, in the isle of Baghery, they lie in an oblique position. At Doon Point, in the same island, and along the Balintoy shore, they form a variety of regular curves. 4. The stone is black, close, and uniform; the varieties of color are blue, reddish, and gray; and of all kinds of grain, from extreme fineness to the coarse granulated appearance of a stone which resembles imperfect granite, abounding in crystals of schorl, chiefly black, though sometimes of various colors. 5. Though the stone of the Giant's Causeway be in general compact and homogeneous, yet it is remarkable that the upper joint of each pillar, where it can be ascertained with any certainty, is always rudely formed and cellular. The gross pillars also, in the capes and mountains, frequently abound in these air-holes through all their parts, which sometimes contain fine clay, and other apparently foreign bodies: and the irregular basaltes beginning where the pillars cease, or lying over them, is in general extremely honeycombed; containing in its cells crystals of zeolite, little morsels of fine brown clay, sometimes very pure steatite, and in a few instances bits of agate.'

In Staffa, one of the western isles of Scotland, the whole end of the island is supported by ranges of pillars, mostly about fifty feet high, standing in natural colonnades, according as the bays and points of land have formed themselves, upon a firm basis of solid unformed rock. Above these, the stratum, which reaches to the sea at the surface of the island, varies in thickness, as the island itself is formed into hills or valleys, each hill, which hangs over the valleys below, is

ing an ample pediment. Some of these, above sixty feet in thickness from the base to the point, are formed by the sloping of the hill on each side, almost into the shape of those used in architecture. Sir Joseph Banks observed that the bending pillars of Staffa differ considerably from those of the Giant's Causeway. In Staffa they lie down on their sides, each forming the segment of a circle; and in one place a small mass of them very much resembles the ribs of a ship. Those of the Giant's Causeway, which he saw, ran along the face of a high cliff, bent strangely in the middle, as if unable at their first formation, while in a soft state, to support the mass of incumbent earth.

Sir William Hamilton informs us, that in 1779 he picked up some fragments of large and regular crystals of close-grained lava or basalt, in the neighbourhood of Vesuvius, the diameter of which, when the prisms were complete, might have been eight or nine inches. He observes, that Vesuvius does not exhibit any lavas regularly crystallised, and forming what are ealled Giants' Causeways, except a lava that ran into the sea, near Torre del Greco, in 1631, which has a small degree of such an appearance. As the fragments of basaltes which he found on this mountain, however, had been evidently thrown out of the crater in their proper form, he puts the question, 'May not lavas be more ready to crystallise within the bowels of a volcano than after their emission? And may not many of the Giants' Causeways already discovered be the nuclei of volcanic mountains, whose lighter and less solid parts may have been worn away by the hand of time? Mr. Faujas de St. Fond gives an example of basalt columns placed deep within the crater of an unextinguished volcano.'

We suppose this writer to allude to the mountain of Aisa, called La Coupe, or the Col d'Aisa, situated near the village Entrague, in the Vivarais. This village, according to St. Fond, is placed on a kind of platform of volcanic matter above the torrent of the Volant, which has here excavated a bed of great depth and width, bordered on the right and left by grand ranges of basaltic columns. In the midst of a prodigious rampart of these columns, at different levels, may be seen a current of lava descending from a neighbouring mountain, and joining the columns that border the river. Here we see, in the most unequivocal and convincing manner, that the lava, under the form of hard and compact basalt, has flowed at several times from the mountain, and has formed the great causeways at different heights, to which the lava is still united and adhering. We may follow the current of basalt up the declivity of the mountain, which has a conical form and a great elevation, and is entirely volcanic from the base to the summit. According to St. Fond, it is the most remarkable and best characterised crater in all the Vivarais.

All the base of the conical mountain La Coupe is covered by porous and cellular lava in detached irregular masses, heaped on each other, so as to have no doubt that they have been ejected in a fluid state by one or more formidable eruptions, and have taken their forms as they fell at the foot of the cone. On reaching the summit or edge of the crater, we may see the whole mountain, which forms a regular cone resembling that of Vesuvius. The edges of the crater are steep, and formed in the shape of a tunnel; the greatest diameter being from 140 to 150 toises, and the depth about 600 feet. The lavas are colored, and converted into a kind of puzzolani, and mixed with great masses of black and sharp scoriæ, which makes the descent difficult. At the bottom of this inverted cone is a magnificent plantation of chestnut-trees, which have flourished astonishingly in this ancient mouth of a volcano, having no other soil than the dry and friable puzzolani. It may be noticed, that the crater of Vesuvius was lined with lofty trees at the period of its eruption in 1631. At the bottom of the crater, in La Coupe, we may observe a breach or opening on the side facing the houses of the Col d'Aisa; there is a general inclination to this opening, which has served to give a passage to the lava. When we are arrived at the opening we may observe a stream of lava coming from the interior, and taking its course down the mountain, it descends in a waving direction amidst the porous lavas. This current is a true black basalt, compact and similar to that of the columns; in certain parts its surface appears blistered, and in other places it becomes porous. Following the current of lava, after it has crossed the path, which is at the foot of the mountain, we may trace its course to the bed of a torrent not far from the high road. There may be seen, says St. Fond, a spectacle most gratifying to the geologist; for the lava whilst still on the descent, and before it had reached the level ground, has effected a prismatic form; and the lava at the bottom has formed a beautiful colonnade.

There is a similar conical mountain in the Vivarais, with a distinct and much larger crater, called La Coupe de Jaujeac. The river Vignon flows at the foot of it. On its banks are immense ranges of basaltic columns, the most elevated of any in the Vivarais. They enclose the borders of the river on each side for more than a league. Some of the prisms rise in one shaft to the height of fifty feet; in other parts, the articulated columns form a kind of regular causeway. In some places the columns are bent, and above we see immense ramparts of basalt, of more than 140 feet in height, in several ranges, spreading out like a fan, and diverging in every direction. On the left, the current of basalt covers several little hills of granite, and is moulded upon them. In some parts the compact lava forms one solid mass; in other places it is arranged in great beds. Nothing can be more grand and varied, says St. Fond, than the course of the river Vignon to the Ardeche, where the great current of lava joins the streams that have flowed from the volcanoes of Thueyts and Neyrac.—*Faujas St. Fond sur les Volcans eteints du Vivarais et du Velay.*

Having noticed the principal localities of basalt, we may now observe that the structure or form in which it appears, presents one of its most striking peculiarities. This would seem to be essentially the same in the various and immense stores of it yet discovered; so that the accurate description of one basaltic deposit might serve, as far as any purposes of science are concerned,

for that of any other. Mr. Hamilton, for instance, the author of the Letters on Antrim, describes the Giant's Causeway in language which might at once be applied to the picturesque pillars of Staffa; telling us that the pillars of the former, varying in their length and thickness from 30 feet to 100, and from one foot to five respectively, rise from the level of the beach, and ascend gradually into the greatest elevations of the neighbouring hills. These colonnades, we are also informed, are generally perpendicular to the horizon, and particularly at the causeway itself; but it is added that, in the vicinity, they are not unfrequently observed lying in an oblique position, and assuming a great variety of regular curves. The same facts are recorded in reference to the famed rocks of the Cyclops. The columns there, as at Staffa and Antrim, are of various sizes and forms, as we have indeed already noticed; some being four-sided, others hexagonal, heptagonal, octagonal, and even nine-sided; which last is the rarest form which basalt ever assumes. The position, too, is equally various; some standing erect, whilst others are laid on their sides, piled above one another like sacks of corn in a granary. The jointed columns too are of ever-varying lengths and joints; some a few inches, others many feet long, found occasionally bent, but generally nicely fitted up, as by the hands of a most skilful mechanic.

Kirwan is also of opinion, that the basaltes owe their origin both to fire and water; they seem to have been at first a lava, he observes; but this, while immersed in it water, was so diffused or dissolved in it with the assistance of heat, as to crystallise when cold, or coalesce into regular forms. That basaltes is not the effect of mere fusion, he concludes from comparing its form with its texture. Its form, if produced by fusion, ought to be the effect of having flowed very thin; but in that case its texture should be glassy: whereas it is merely earthy, and devoid of cavities. Hence, we may understand how it comes to pass that lava perfectly vitrified, and even water, have been found enclosed in masses of basaltes.

It is known, in confirmation of this reasoning, that when lava runs into the sea, it does in most cases actually assume the basaltic structure more or less perfectly: and, it is worthy of particular observation, that all the columnar trap which has attracted any attention on account of its regularity or beauty, is either altogether insular or situated near the ocean.

As to its formation and analysis:—'Ten years ago,' says Mr. Bergman,' it was a general opinion, that the surface of the earth, together with the mountains, had been produced by moisture. It is true that some declared fire to be the original cause, but the greater number paid little attention to this opinion. Now, on the contrary, the opinion that subterraneous fire had been the principal agent gains ground daily; and every thing is supposed to have been melted, even to the granite. My own opinion is, that both the fire and water have contributed their share in this operation; though in such proportion that the force of the former extends much farther than the latter; and, on the contrary, that the fire has only worked in some parts of the surface of the earth. It cannot be doubted that there has been some connexion betwixt the basaltic pillars and subterraneous fire; as they are found in places where the marks of fire are yet visible; and as they are even found mixed with lava, tophus, and other substances produced by fire. As far as we know, nature makes use of three methods to produce regular forms in the mineral kingdom. 1. That of crystallisation or precipitation. 2. The crusting or settling of the external surface of a liquid mass while it is cooling: and 3. The bursting of a moist substance while it is drying. 1. The first method is the most common; but to all appearance, nature has not made use of it in the present case. Crystals are seldom or never found in any quantity running in the same direction; but either inclining from one another, or, what is still more common, placed towards one another in sloping directions. They are also generally separated a little from one another when they are regular. The nature of the thing requires this, because the several particles of which the crystals are composed must have the liberty of obeying that power which affects their constitution. The basaltic columns on the contrary, whose height is frequently from thirty to forty feet, are placed parallel to one another in considerable numbers, and so close together that the point of a knife can hardly be introduced between them. Besides, in most places, each pillar is divided into several parts or joints, which seem to be placed on one another. And indeed it is not uncommon for crystals to be formed one above another in different layers, while the solvent has been visibly diminished at different times: but then the upper crystals never sit so exactly upon one another as to produce connected prisms of the same length or depth in all the strata taken together; but each stratum, separately taken, produces its own crystals. Precipitation, both in the wet and dry way, requires that the particles should be free enough to arrange themselves in a certain order; and as this is not practicable in a large melted mass, no crystallisations appear, excepting on its surface or in its cavities.

Bergman found that the component parts of various specimens of Basaltes were, at a medium 52 parts silex, 15 alumina, 8 carbonate of lime, and 25 iron.

Several modern mineralogists have analysed basalt, and other trap rocks, to discover their affinity with one another, and to the lava of volcanos, of which they are all conceived to be only varieties. Indeed the facts we have already given of the basaltic formations in France, seem to put the question at rest. The following results obtained by Dr. Kennedy, are extracted from the Edinburgh Philosophical Transactions.

The basalt from Staffa contains in 100 parts

Silex	48
Argil	16
Oxide of iron	16
Lime	9
Soda	4
Muriatic acid	1
Loss	6
	100

The lava of Catanea, Mount Ætna, contains in 100 parts,

Silex	51
Argil	19
Oxide of iron	14·5
Lime	9·5
Soda	4
Muriatic acid	1
Loss	1
	100

The greenstone of Salisbury craig, contains in 100 parts,

Silex	46
Argil	19
Oxide of iron	17
Lime	8
Soda	3·5
Muriatic acid	1
Loss	5·5
	100

The lava of Santa Venese, Mount Ætna, contains in 100 parts,

Silex	50·75
Argil	17·5
Oxide of iron	14·25
Lime	10
Soda	4
Muriatic acid	1
Loss	2·95
	100

The greenstone of Calton hill, at Edinburgh, contains in 100 parts,

Silex	50
Argil	18·50
Oxide of iron	16·75
Lime	3
Soda	4
Muriatic acid	1
Loss	6·75
	100

The amorphous basaltes, known by the name of Rowley Rag, the ferrilite of Kirwan, of the specific gravity of 2·748, afforded Dr. Withering 47·5 of silex, 32·5 of alumina, and 20 of iron, at a very low degree of oxidation. Klaproth gives, for the analysis of the prismatic basaltes of Hasenberg, silex 44·5, alumina 16·75, oxide of iron 20, lime 9·5, magnesia 2·25, oxide of manganese 0·12, soda 2·60, water 2. On a subsequent analysis, with a view to detect the existence of muriatic acid, he found slight indications of it, but it was in an extremely minute proportion.

On the whole, the affinity between lava and trap rock formations seems established, but for further information we would refer the reader to the interesting work of Dr. M'Culloch, on the western isles; Dr. Boué's Essai Geologique sur l' Ecosse, Necker de Saussure; and the Geological Essays of Messrs. Buckland, Conybeare, and Dauting.

BASALTIC Horneblende, occurs usually in opaque six-sided single crystals, which sometimes act on the magnetic needle. It is imbedded in basalt or wacke. Color velvet-black. Lustre vitreous. Scratches glass. Sp. gr. 3·25. Fuses with difficulty into a black glass. It consists of 47 silica, 26 alumina, 8 lime, 2 magnesia, 15 iron, and 0·5 water. It is found in the basalt of Arthur's Seat, in that of Fifeshire, and in the isles of Mull, Canna, Eigg, and Sky. It is found also in the basaltic and floetz trap rocks of England, Ireland, Saxony, Bavaria, Hungary, France, and Spain.

BASAN. See Bashan.

BASANITE, in mineralogy, is a variety of silicious slate, commonly known under the name of touchstone, and has been used both in ancient and modern times, to determine the purity of gold and silver by the color of the streak which those metals leave when rubbed on it. The permanency or otherwise of the streak, under the application of nitric acid, is a further test of the purity of gold. Other stones have been occasionally applied to this purpose. See Assay.

BASANWOW, in the Celtic mythology, was the son of Diocles, the king of the Sicambrians. He disappeared suddenly, after having reigned thirty-six years, was supposed to have ascended to heaven, and was honored by the Germans as the god of armies.

BASARTSCHIK, a considerable town of European Turkey, in Romania. It is well built, and has clean and broad streets. It is situated on the river Maritz.

BASARUCO, in commerce, a small base coin in the East Indies, made of very bad tin. Of this coin there are two sorts; the base sort is one-sixth lower in value than the good. Three basarucos are equal to two rees of Portugal.

BAS-BRETON, the language of the natives of Bretagne, or Brittany.

BASCANIA, in antiquity, ridiculous or grotesque figures, hung up by the ancient smiths before their furnaces, as charms against envy.

BAS-CHEVALIER. See Bachelor.

BASE, *v. n.* & *adj.*
Ba'seless,
Ba'sely,
Ba'seness,
Baseborn,
Base-String.

Derived from Βασις, that upon which we tread, stand, or go, from Βαινω, Βαινειν, to go. Thus it means, with regard to locality, any thing low; the lower part of a pedestal, and the foundation on which it rests; any thing spurious or mixed. It is metaphorically applied to sounds; to dispositions of the mind; to actions; to general character. Thus it signifies whatever is lowered, degraded, disgraced, shameful, vile, mean, and worthless. It is, however, a stronger term of reproach than those employed to express its meaning: mean and vile, especially, convey a very inadequate sense of it. *Base* marks a high degree of moral turpitude; vile and mean denote, in different degrees, the want of all value or esteem; what is base excites our abhorrence; what is vile provokes disgust; what is mean awakens contempt. A base voice or sound, is a low deep voice or sound.

Mete the space from thy foote to the *base* of the toure.
Chaucer. Astrolabie.

And I will yet be more vile than this, and will be *base* in mine own sight. 2 *Sam.*

Upon this *base* a curious work is rais'd,
Like undivided brick, entire and one;
Though soft, yet lasting, with just balance pois'd;
Distributed with due proportion.
P. Fletcher. Purple Island.

Instead of music, and *base* flattering tongues,
Which wait to first salute my lord's uprise;
The cheerful lark wakes him with early song,
And birds' sweet whistling notes unlock his eyes. *Id.*

By him Andicon pac'd of middle age,
His mind as far from rashness, as from fears;
Hating *base* thoughts, as much as desperate rage.
The world's loud thunderings he unshaken hears,
Nor will he death or life, or seek or fly;
Ready for both—He is as cowardly
Who longer fears to live, as he who fears to die. *Id.*

What if it tempt thee tow'rd the flood, my lord?
Or to the dreadful summit of the cliff,
That beetles o'er his *base* into the sea? *Shakspeare.*

If that rebellion
Came, like itself, in *base* and abject routs,
You, reverend father, and these noble lords,
Had not been here. *Id.*

It could not else be, I should prove so *base*
To sue and be denied such common grace. *Id.*

Why, bastard? wherefore *base?*
When my dimensions are as well compact
As honest madam's issue. *Id.*

The king is not himself, but *basely* led
By flatterers. *Id.*

Why brand they us
With *base?* with *baseness?* bastardy? *Id.*

I have sounded the very *base*-string of mortality.
Id. Henry IVth.

Men of weak abilities in great place, are like little statues set on great *bases*, made the less by their advancement. *Bacon.*

Insurrections of *base* people are commonly more furious in their beginnings. *Id.*

In pipes, the lower the note holes be, and the further from the mouth of the pipe, the more *base* sound they yield. *Id.*

The just and measured proportion of the air percussed towards the *baseness* or trebleness of tones, is one of the greatest secrets in the contemplation of sounds. *Id.*

This young lord lost his life with his father in the field, and with them a *base* son. *Camden's Rem.*

A lieutenant *basely* gave it up, as soon as Essex in his passage demanded it. *Clarendon.*

If fortune hath envyed me wealth, thieves have robbed me, my father have not left me such revenues as others have, that I am a younger brother *basely* born, of mean parentage, a dirt-dauber's son, am I therefore to be blamed? an eagle, a bull, a lion, is not rejected for his poverty, and why should a man? 'Tis fortune's fault; not mine. *Anat. Melancholy.*

Swinish gluttony
Ne'er looks to heaven amidst his gorgeous feast,
But with besotted *base* ingratitude
Crams and blasphemes his feeder. *Milton's Comus.*

Phalastus was all in white, having his *bases* and caparison embroided. *Sidney.*

Since the perfections are such in the party I love, as the feeling of them cannot come unto any unnoble heart; shall that heart, lifted up to such a height, be counted base. *Id.*

We hold, that seeing there is not any man of the Church of England but the same man is also a member of the commonwealth, nor any member of the commonwealth which is not also of the Church of England; therefore, as in a figure triangle, the *base* doth differ from the sides thereof, and yet one and the self-same line is both a *base* and also a side; a side simply; a *base* if it chance to be the bottom and underlie the rest: so, albeit, properties and actions of one do cause the name of a commonwealth, qualities and functions of another sort, the name of the church to be given to a multitude, yet one and the self-same multitude may in such sort be both.
Hooker. Eccles. Pol.

Which when the cruel Amazon perceiv'd
She 'gan to storme, and rage, and rend her gall
For very fell despight, which she conceiv'd
To be so scorned of a *base*-born thrall,
Whose life did lie in her least eye-lids' fall. *Spenser.*

Such is the power of that sweet passion,
That it all sordid *baseness* doth expel. *Id.*

The silver-sounding instruments did meet
With the *base* murmur of the water's fall;
The water's fall, with difference discreet,
Now soft, now loud, unto the wind did call;
The gentle warbling wind low answered to all. *Id.*

If the lords and chief men degenerate, what shall be hoped of the peasants and *baser* people.
Id. On Ireland.

Oh! she is the pride and glory of the world;
Without her all the rest is worthless dross;
Life a *base* slavery; empire but a mock;
And love, the soul of all, a bitter curse.
Rochester's Valentinian.

Nor shall it e'er be said that wight,
With gauntlet blue and *bases* white,
And round blunt truncheon by his side,
So great a man at arms defy'd. *Hudibras.*

He, whose mind
Is virtuous, is alone of noble kind;
Though poor in fortune, of celestial race;
And he commits the crime who calls him *base*.
Dryden.

At thy well-sharpen'd thumb, from shore to shore,
The trebles squeak for fear, the *bases* roar. *Id.*

Your soul's above the *baseness* of distrust,
Nothing but love could make you so unjust. *Id.*

We alleged the fraudulent obtaining his patent, the *baseness* of his metal, and the prodigious sum to be coined. *Swift.*

When a man's folly must be spread open before the angels, and all his *baseness* ript up before those pure spirits, this will be a double hell. *South.*

It is *base* in his adversaries thus to dwell upon the excesses of a passion. *Atterbury.*

At the first grin he cast every human feature out of his countenance; at the second he became the head of a *base*-viol. *Addison.*

A guinea is pure gold, if it has nothing but gold in it, without any alloy or *baser* metal. *Watts.*

But see thy *base*-born child, thy babe of shame,
Who, left by thee, upon our parish came. *Gay.*

Those wise old men, those plodding grave state pedants,
Forget the course of youth; their crooked Prudence,
To *baseness* verging still, forgets to take
Into their finespun schemes the generous heart,
That through the cobweb system bursting lays
Their labours waste.
Thomson's Tancred and Sigismunda.

When men of rank sacrifice all ideas of dignity to ambition without a distinct object, and work with low instruments for low ends, the whole composition becomes low and *base*. *Burke.*

Oh, ye seven hills! awaken,
Ere your very *base* be shaken. *Byron.*

BASE. A game or play; to keep moving about one spot of ground.

The first day of the challenge at *base*, or running, the king won. *Burnet's Hist. of Reform.*

Base, in architecture, is used for any body which bears another, but particularly for the lower part of a column and pedestal. The ancients, in the early times of architecture, used no bases. The doric columns in the temple of Minerva at Athens have none, but stand immediately upon the floor of the porch. Columns afterwards came to be supported on square pieces called plinths, and after that on pedestals. The base of a column, of whatsoever order, on a pedestal, is that part which comes between the top of the pedestal and the bottom of the shaft of the column; when there is no pedestal, it is the part between the bottom of the column and the plinth: some have included the plinth as a part of the base, but it is properly the piece on which the base stands, as the column stands upon that. The pedestal also has its base as well as the column, and the pilaster. The base of columns is differently formed in the different orders; but in general it is composed of certain spires or circles, and was thence in early times called the spire of a column. These circles were in this case supposed to represent the folds of a snake as it lies rolled up; but they are properly the representations of several larger and smaller rings or circles of iron, with which the trunks of trees, which were the ancient columns, were surrounded to prevent their bursting; these were rude and irregular, but the sculptor who imitated them in stone found the way to make them elegant. The base is different in the different orders: thus,

Base, Composite, has an astragal less than the corinthian.

Base, Corinthian, has two toruses, two scotias and a fillet.

Base, Doric, has an astragal more than the Tuscan, though that was introduced by the moderns.

Base, Ionic, has a lage torus over two slender scotias, separated by two astragals: though in the most ancient monuments of this order there are no bases at all; which the architects are at a loss to account for.

Base, Tuscan, is the most simple of all others; consisting of a single torus besides the plinth.

Base, in chemistry. See Basis.

Base, in fortification, the exterior side of the polygon, or that imaginary line which is drawn from the flanked angle of a bastion to the angle opposite to it.

Base, in geometry, the lowest side of the perimeter of a figure.

Base of a Conic Section, a right line in the hyperbola and parabola, arising from the common intersection of the secant plane and the base of the cone.

Base of a Rectangled Triangle, the side opposite the right angle, i. e. the hypothenuse.

Base of a Solid Figure, the lowest side, or that on which it stands.

Base of a Triangle, any side thereof is occasionally so called; though properly it is the lowest side, or that which lies parallel to the horizon.

Base, in gunnery, the least sort of ordnance, the diameter of whose bore is $1\frac{1}{4}$ inch, weight 300 pounds, length 4 feet, load 5 pounds, shot $\frac{1}{4}$ pound weight, and diameter $\frac{1}{8}$ inch.

Base Court, in law, sometimes signifies any court not of record.—Such, is the Court-baron.

Base Estates are such as base tenants have in their lands.

Base Fee, a tenure in fee at the will of the lord, as distinguished from soccage, or free tenure; but, according to Lord Coke, a base fee is what may be defeated by limitation, or on entry, &c.

Base Tenure (bassa tenura), holding by villenage, or other customary service; as distinguished from the higher tenures in capite, or by military service.

Base, in music, see Bass.

Base, in trigonometry. See Altern Base.

Base Knights, the inferior order of knights, as distinguished from barons and bannerets, who were the chief or superior knights.

BASELLA, climbing nightshade, from Malabar. A genius of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the twelfth order, holoraceæ. The calyx is wanting; the corolla is seven-cleft, with the two opposite divisions broader and at last berried, there is one seed. 1. B. alba, with oval, waved, flaccid leaves, and small flowers and fruit. These plants will climb to a considerable height, and send forth a great number of branches; so they should be trained up to a trellis, or fastened to the back of the stove; otherwise they will twist themselves about whatever plants stand near them, which will make a very disagreeable appearance. 2. B. rubra, with red leaves and simple footstalks, has thick, strong, succulent stalks, and leaves which are of a deep purple color.—This plant will climb to the height of ten or twelve feet, provided it is kept in a stove; but in the open air it will not grow so large in this country; nor will the seed come to perfection unless in very warm seasons. The flowers of this plant have no great beauty, but it is cultivated on account of the odd appearance of its stalks and leaves, and the flowers of a whitish green color tipped with purple.

BASELLI or Basels, in our old historians, a species of coin abolished by King Henry II. A. D. 1158.

BASEMENTS, in architecture. See Architecture, Index.

Base Ring of a cannon, is the great ring next behind the touch-hole.

Base Rocket, in botany. See Reseda.

BAS-EN-BASSET, or Basset, a market town in the department of the Upper Loire, France, arrondissement of Issengeaux. It is the head of a canton and has 5000 inhabitants. Here are manufactures of blond lace, tobacco-pipes, and earthenware. It is three miles north-west of Monistrol, and twenty north-east of Le Puy.

BA'SENET, Fr. *bassinet;* Old Eng. *basnyt;* a little bowl, a small basin; a part of military equipage, a kind of helmet or head-piece, worn originally by the French men at arms.

Notwithstanding at the last the king made him put on his *basenet*, and then took a surd with both his hands, and strongly with a good will strake him on the necke, and the same day hee made three other citizens knights for his sake in the same place.

Stow, Ann. 1381. R. 2

Therefore he would her doe away all dread;
And that of him shee mote assur'd stand,
He sent to her his *basenet*, as a faithful band.
Spenser. Faerie Queene.

BASH, *v. n.*
BASH'FUL, *adj.*
BASH'FULLY, *adv.*
BASH'MENT, *n. s.*
BASH'FULNESS, *n. s.*

See To ABASH. This word, with all those of the same race, Dr. Johnson says, are of uncertain etymology. Skinner imagines them derived from base or mean; Minsheu from *verbaesen*, Dut., to strike with astonishment; Junius from *βασις*, which he finds in Hesychius to signify shame. The conjecture of Minsheu seems most probable. It is sometimes used as synonymous with modest and modesty; but not with a nice regard to accuracy. Modest signifies setting measure to ones estimate of oneself; but *bashful*, a lady to be abashed. Modesty is a habit or principle of the mind; *bashfulness* is a state of feeling. Modesty is at all times becoming; *bashfulness* is only becoming in females, or very young persons, in the presence of their superiors. Modesty discovers itself in the absence of every thing assuming, whether in look, word, or action; *bashfulness* betrays itself by a downcast look, and a timid air. A modest deportment is always commendable; a bashful temper is not desirable.—*Crabb.*

Are you not ashamed, *bash* you not to broach and set abroad, in the view and face of the world, such mockeries of religion? *Holland's Livius*, fol. 320.

It might be either for the lacke of learnyng and good bryngyng up (a great and common fault in great princes of Germany), or els for his *bashful* nature in youth, which propertie Xenophon wittely faynged to be in Cyrus at lyke yeares, judging *bashfulness* in youth, to be a great token of virtue in age.
Ascham. Report and Discourse.

He looked with an almost *bashful* kind of modesty, as if he feared the eyes of man. *Sidney.*

They *bashe* not to defile the wives of other men.
Bale on the Revelations.

Ah! see the virgin rose, how sweetly shee
Doth first peep forth with *bashful* modestee,
That fairer seemes the lesse ye see her may!
Lo! see soone after, how more bold and free,
Her bared bosom she doth broad display!
Lo! see soone after, how she fades and falls away.
Spenser.

His countenance was bold, and *bashed* not
For Guyon's looks, but scornful eye glance at him shot. *Id.*

I never tempted her with word too large;
But, as a brother to a sister, show'd
Bashful sincerity with comely love. *Shakspeare.*
Hence *bashful* cunning?
And prompt me plain and holy innocence. *Id.*

Another, through *bashfulness*, suspicion, and timorousness, will not be seen abroad, loves darkness as life, and cannot endure the light, or to sit in lightsome places; his hat still in his eyes, he will neither see, nor be seen by his good will. *Anat. Mel.*

Her golden hair, her silver forehead high,
Her teeth of solid, eyes of liquid pearl;
But neck and breast no man might bare descry,
So sweetly modest was this *bashful* girl.
Fletcher's Purple Island.

There are others, who have not altogether so much of this foolish *bashfulness*, and who ask every one's opinion. *Dryden.*

Our author anxious for his fame to-night,
And *bashful* in his first attempt to write,
Lies cautiously obscure. *Addison.*

Mere *bashfulness* without merit is awkwardness. *Id.*

Doubtless there are men of great parts that are guilty of downright *bashfulness*, that by a strange hesitation and reluctance to speak, murder the finest and most elegant thoughts, and render the most lively conceptions flat and heavy. *Tatler*, No. 252.

Our orators, with the most faulty *bashfulness*, seem impressed rather with an awe of their audience than with a just respect for the truths they are about to deliver; they, of all professions, seem the most *bashful* who have the greatest right to glory in their commission. *Goldsmith. Essay III.*

So bright the tear in Beauty's eye,
Love half regrets to kiss it dry,
So sweet the blush of *bashfulness*,
Even pity scarce can wish it less. *Byron.*

BASHAN, or BASAN, a kingdom beyond Jordan, mentioned in Scripture. By Josephus, Eusebius, and Jerome, it is called Batanæ. When the Israelites entered the land of Canaan, the whole country beyond Jordan, from that of the Moabites or Arabia, as far as mount Hermon and Lebanon, was divided into two kingdoms, viz. those of the Amorites, and the Bashanites: the former to the south, and the latter to the north. The kingdom of the Amorites extended from the river Arnon and the country of Moab, to the river Jabbok; which, running obliquely from the east, was at the same time the boundary of the Ammonites, as appears from Numb. xxi. 24. and Deut. ii. 37. and iii. 16. It fell to the lot of the Reubenites and Gadites, and Bashan, to the half tribe of Manasseh. To this was annexed a part of the hilly country of Gilead, and the district of Argob; yet so that Bashan continued to be the principal and greatest part: but after the Babylonish captivity Bashan was subdivided, so that only a part was called Batanea or Basan, another Trachonitis, a third Aurunitis or Iturea, and some part Gaulonitis; but to settle the limits of each of these parts is now impossible. Bashan was a country famous for its pastures, and breed of large cattle.

BASHAN, a mountain in the above kingdom, which seems to have retained its original name long after the Israelites were in possession of that country; at least is often mentioned with a reference to its original inhabitants, who were idolaters and enemies to Israel. In this respect bringing back from Bashan, signifies the deliverance from bondage, even death. Bashan is referred to in another view: the country is exceedingly fruitful, and is therefore used to represent a flourishing state.

BASHANITES, the people of Bashan.

BASHAR EBN MOTAMER, a principal man among the Motazalites, who varied in some points from the general tenets of the sect, extending man's free agency to a great length, even to the making him independent. He asserted, that God is not always obliged to do that which is best, for that, if he pleased, he could make all men true believers. Accordingly he taught that God might doom an infant to eternal punishment; but taught at the same time, that he would be unjust in so doing!

BASHARIANS, a sect of Mahommedans, a subdivision of the Motazalites, who maintain the tenets of Bashar Ebn Motamer. See last article.

BASHAW, PASCHA, or PACHA, a Turkish [illegible]

vernor of a province, city, or other district. All Egypt is, on the part of the grand seignior, governed by a bashaw, who has in reality but little power; but seems principally to be meant for communicating to his divan of beys, and to the divans of the several military ogiacs, the orders of the grand seignior, and to see that they be executed by the proper officers. When a bashaw farms a country of the grand seignior, the fines that are paid, when any life drops upon the lands, belong to him. Originally all the lands of Egypt belonged to the grand seignior; and he still looks on them as his own: but his power being now lost, they all go to the next heir; who must, however, be invested by the bashaw, and he is therefore glad to compound for a small sum. The nature of the bashaw's office requires him to be ever attempting means to cut off such as are too aspiring, or engaged in designs that may be any way prejudicial to the Porte. This often occasions his own deposition; but he is unconcerned about that, as his person is always sacred; and his losing his post is only a step to higher preferment. Bashaws include beglerbegs, and sometimes sangiachegs; though a distinction is sometimes made, and the name bashaw is appropriated to the middle sort or such as have two ensigns or horse-tails carried before them. Those who have the honor of three tails, are called beglerbegs; and those who have only one, sangiachegs. The appellation of bashaw is also given by way of courtesy, at Constantinople, to the lords about the grand seignior's court, the officers in the army, and almost every person of any figure. A bashaw is made with the solemnity of carrying a flag or banner before him, accompanied with music and songs by the Miriahem, an officer whose business it is to invest the bashaws. Bashaw, used absolutely, denotes the prime vizier; the others of that denomination being distinguished by the addition of the province, city, or the like, which they have the command of; as the bashaw of Egypt, of Palestine, &c. The bashaws are the emperor's bonges. We find loud complaints among the Christians who reside in Turkey, of their avarice and extortions. As they buy their governments, every thing is venal with them. When glutted with wealth, the emperor frequently makes them a present of a bow-string, and becomes heir to their spoil. There are also sub-bashaws, or deputy-governors under the bashaws.

BASHAW, CAPTAIN, is the title of the Turkish high admiral.

BASHEE ISLANDS, five islands in the Chinese sea, and two islets, almost wholly rock, visited by Dampier in 1687, and so named from an agreeable intoxicating liquor found here, made from the sugar-cane. The principal one is Grange Island, being about twenty-two miles long, and six broad. The other are Monmouth, Grafton, Goats, and Bashee Proper. The soil is very fertile in the productions of these seas: in 1683 the Spaniards formed a settlement on the Bashee islands, in order to procure the gold which is said to be washed down by the torrents. The natives fabricate it into wire for ornaments.

BASHEMATH, the daughter of Ishmael, one of Esau's wives. It appears to have been also a name of Adah, his first wife. See Gen. xxvi. 34. and xxxvi. 2.

BASEDOW (John Bernard), a celebrated writer, born at Hamburgh, in 1723. After studying under Reimarus, he went to Leipsic; and in 1753 was chosen professor of moral philosophy and the belles lettres at Soroe, in Denmark. But having divulged some opinions in religion differing widely from Lutheranism, he was removed from this situation; upon which he formed a plan of reformed education, and raised considerable sums of money for perfecting it. His plan, however, after a partial trial, proved unsuccessful; and he died through intemperance and dissipation in 1790. His writings, though full of dogmatical assertions and fanciful opinions, show him to have been an ingenious man.

BASHILO, a river of Abyssinia, which separates Begamder from Amhara, and falls into the Bahr-el-Azergue, thirty miles south-east of Alata.

BASHKIRS, or BASCHKIRS, a people of the Russian empire. They call themselves Bashkourt; and derive their origin partly from the Nogay-Tartars, and partly from the Bolgarians. Probably they are Nogays, whom the Bolgares adopted among them: their country at least is a part of the ancient Bolgaria. They formerly roamed about the southern Siberia under the conduct of their own princes: but to avoid the molestations of the Siberian khans, settled in their present possessions, about the rivers Volga and Ural, and were subject to the Kazanian khanate. On the overthrow of that state by czar Ivan II. they voluntarily took refuge under the Russian sceptre: they afterwards, however, frequently revolted against the government, whereby their prosperity as well as their population has been considerably diminished. In the year 1770 they consisted of 27,000 families, having their homes in the governments of Usa and Perme. The Bashkirs have been long without khans; and all their nobility have been gradually destroyed in the civil wars. At present every tribe or wolost chooses for itself one or more ancients, or starschinis; and the whole nation composes thirty-four wolosts. The huts or houses, which they inhabit during winter, are built after the Russian fashion; the principal part, which the family commonly possesses, is furnished with large benches, which serve for beds; the chimney, of a conical form, and of the height of an ordinary man, is in the middle of this division, and so ill constructed, that they are very liable to smoke: on this account the Bashkirs are very subject to various complaints of the eyes. In summer this people inhabit what the Russians call jurtes; they are tents or covers of felt, which, like the huts, have several divisions and a chimney in the centre. A winter village contains from ten to fifty huts; but the summer encampment never exceeds twenty jurtes. These jurtes are a kind of barracks.

The bashkirs have some knowledge of the art of writing, and have schools; but as it is from their own nation that they elect their priests and the instructors of youth, they remain in the profoundest ignorance. With some knowledge of tillage, they retain a liking to the pastoral life; which spoils them for agriculture. They sow

but little grain; consequently their harvests afford them only few resources for the winter, being far from sufficient for their whole consumption. They apply with greater success to the cultivation of bees; making hollows in the trees to serve the purposes of hives: which, to secure from the attacks of the bears, they have invented a variety of ingenious contrivances, both as weapons and traps. One man, in frequent instances, is known to possess at least 500 hives. They have the art of finding out the mountains that contain mines; but, like the Tartars, they would think themselves disgraced by working them themselves. It must be owned, however, that they have not the strength of body which that labor requires. Their practice is to let them out for a term of sixty years to Russian contractors; assigning to them at the same time a tract of forest necessary for the forges. The poorest of them serve for wages in transporting the ore.

The women understand the art of weaving, fulling, and dyeing narrow coarse cloths; they likewise make the clothes for the whole family. They make a small quantity of linen of hemp; but they prefer weaving the filaments of the common nettle, as that plant requires no culture, and the linen they make of it is extremely coarse. They have not the unwholesome practice of steeping their hemp or their nettles in water, but leave them to dry in the air on the top of their huts during the autumn and winter; then stripping off the bark, they pound them in wooden mortars. The men follow the more difficult business of making felt, and of tanning leather. Both sexes wear shirts of the cloth made of nettles; they also wear wide drawers, which descend to the ankle-bone, and a sort of slippers, like people in the East. Both men and women wear a long gown, that of the men being generally of red cloth bordered with fur; this they bind round their middle with a girdle, or with the belt to which they fix their scimitar. The poor have a winter pelisse of sheep-skin, and the rich wear a horse-skin in such a manner that the mane covers their back and waves in the wind. The cap is of cloth like the frustum of a cone, and ten inches high; and that of the rich is usually ornamented with valuable furs. The gown of the wives is made of fine cloth or silk, buttoned before as high as the neck, and fastened by a broad girdle, which the richer classes have made of steel. Their necks and throats are covered with a sort of shawl, on which are several rows of coins, or a string of shells.

The principal wealth of this people consists in their flocks; it is especially from their horses that they derive the necessaries of life; meat, milk, vessels, garments. They have nearly as many and even rather more sheep than horses; and their horned cattle are about half as numerous; they likewise bring up some goats, and only the rich have camels. A man of the ordinary class has seldom fewer than between thirty and fifty horses, many possess 500, and some 1000, 2000, and more. Their sheep are of the broad-tailed species; they esteem the others for the fineness of their wool.

The most opulent of the Bashkirs are those who dwell to the east of the Ural, and in the province of Isset. Some of them are owners of not less than 4000 horses, who fatten in the richest pastures: the wasps and gnats oblige them in the month of June to quit these fine meadows, and retreat to the mountains; the horses then lose their flesh and pine away, but regain their pristine vigor on coming down again to the plains in the month of July.

Though the Bashkirs experience a long and very severe winter, yet they abandon their flocks and droves to the inclemencies of the season. They have neither granaries nor barns; they only lay up a little hay, which they range in cocks round the trees, reserving it for the distempered cattle. Those that are healthy pick up a little grass or moss from beneath the snow, and are often reduced to the necessity of feeding on the bark of the young elms. No farther attention is paid to the camels than to wrap them in some wretched coverings of felt, which they sew about their body. The cattle towards the end of the winter are become lean, weak, and emaciated. Though the females are never kept apart from the males, they rarely bring forth out of season; because the exhausted state of the flocks and herds, during the winter, is unfavorable to generation. Neither the Bashkirs nor the Kalmucs suffer the colts and the calves to suck their dams except during the night, their practice being to milk them in the day-time for their own advantage; kumiss, prepared from mare's milk, being their favorite liquor. (See KUMISS.) They are also fond of a mixture of sour milk and mead, called arjan. In the spring they drink the sap of the birch, which they collect by means of deep incisions in the trees.

Their arms are the bow, the lance, the helmet, and coat of mail; from the Russians they obtain sabres, musquets, and pistols. A Bashkirian army presents a truly curious spectacle; observing no order in marching, they only form into ranks when they halt. Every one leads a horse in his hand, which carries all his provisions. The load, however, is not heavy; consisting only of cheese, some corn dried in the kiln, and a hand-mill to grind it to meal. With the meal they form a ball which they swallow, and which serves them for bread. Each warrior, dressed in his long gown, equips himself as he chooses or as he can. One has procured for himself the various kinds of arms, and carries a whole arsenal with him; the other scarcely possesses more than one ill-conditioned weapon. Such troops as these rendered the armies of the ancient Persians at once so numerous and so little formidable.

They are all well mounted, are skilful in drawing the bow, and dexterously manage their horses. A small number of Bashkirs are easily victorious over a numerous squadron of Kirghuses; sometimes one of their regiments will traverse a wide horde of Kirghises, put to flight by their very looks all the enemies they meet, and return triumphant without having sustained the smallest loss. The military service which they are bound to perform, and the only point in which they are galled by the Russian yoke, consists in furnishing, in time of war, 3000 cavalry, which form thirty troops of 100 men each. The Bashkirs

are the most negligent and slovenly of the Tartars. In commerce they are the least intelligent; but, at the same time, they are the most hospitable, the most lively, and the most brave. Their diversions at any religious festival, or at a marriage, consist in numerous libations of sour milk, singing, dancing, wrestling, and horse-racing, in which they excel. In their songs they enumerate the achievements of their ancestors, or their own, and sometimes their amorous adventures. Their songs are always accompanied with gestures, which render them very theatrical. Among them old age meets with the greatest respect. In their entertainments, it occupies the place of honor; and the stranger, to whom compliments are paid, is always set among the old men. The language of these people is a Tartar dialect, very different from that spoken at Kasan. The Bashkirians are, like most of the Tartars, Mahommedans; but though they have their mosques, their molaks, and their schools, they are much addicted to superstition and sorcery. Their sorcerers challenge even the devil, and pretend to engage with him in combat; and thus they delude the credulous vulgar, who consult them in their distress, and particularly when they lose any of their mares. Tooke's View of Russia, vol. i. p. 473. Chantreau's Travels, vol. i. p. 281.

BASHUYSEN (Henry James Van), a learned and ingenious divine, born at Hanau, in 1679, where he became professor of the Oriental languages, and ecclesiastical history. He was afterwards professor of divinity, and member of the royal society at Berlin; and had a printing press in his house, from which he sent abroad some curious tracts, principally on rabbinical learning. He died in 1758.

BASIA Ultima. See Ultima.

BASIATRAHAGI, in botany, a name used by some for the common polygonum, or knot-grass.

BASIER, or Basire (Isaac), a learned and active divine in the seventeenth century, was born in the isle of Jersey, in 1607. For some time he was master of the college or free-school at Guernsey: but, at length, became chaplain to Thomas Morton, bishop of Durham, who gave him the rectory of Stanhope, and the vicarage of Egglescliff, in Durham. In July, 1640, he had the degree of D. D. conferred upon him at Cambridge, by mandate; and at Oxford the November following. About that time he was made chaplain in ordinary to king Charles I. and got several other preferments, but did not long enjoy them; for, in the beginning of the civil wars, being sequestered, plundered, and forced to fly, he repaired to king Charles at Oxford, before whom, and his parliament, he frequently preached. Upon the surrender of the Oxford garrison to the parliament, unwilling to stay any longer in the British dominions, he resolved to go and propagate the doctrine of the English church in the east, among the Greeks, Arabians, &c. Leaving, therefore, his family in England, he went first to Crete, an island near the Morea, where he made some stay; and had good success in spreading among the Greek inhabitants the doctrines of the English church, the sum whereof he imparted to several of them in a vulgar Greek translation of our Church Catechism. The effect of it was so remarkable, that it drew envy, and consequently persecution, upon him from the Latins. This occasioned his voluntary recess into the Morea, where the metropolitan of Achaia prevailed upon him to preach twice in Greek, at a meeting of some of his bishops and clergy, which was well taken. At his departure he left him a copy of the catechism above-mentioned. From thence, after he had passed through Apulia, Naples, and Sicily again (in which last, at Messina, he officiated for some weeks aboard a ship), he embarked for Syria; and after some months stay at Aleppo, where he had frequent conversation with the patriarch of Antioch, then resident there, he left a copy of the Church Catechism, translated into Arabic, the native language of that place. From Aleppo he went in 1652 to Jerusalem, and so travelled over all Palestine. At Jerusalem he received much honor, both from the Greeks and Latins. Returning to Aleppo, he passed over the Euphrates, into Mesopotamia, where he intended to send the Church Catechism in Turkish, to some of their bishops, who were mostly Armenians. This Turkish translation was procured at Constantinople. After his return from Mesopotamia, he wintered at Aleppo, where he received several courtesies from the consul, Mr. Henry Riley. In the beginning of 1653 he departed from Aleppo, and came to Constantinople by land, being 600 miles, without either servant, or Christian, or any man with him, that could so much as speak the Frank language: yet, by the help of some Arabic he had picked up at Aleppo, he performed that journey in the company of twenty Turks, who used him courteously because he was physician to them and their friends. After his arrival at Constantinople, the French Protestants there desired him to be their minister, though he declared to them his resolution to officiate according to the English liturgy, and promised to settle on him, in three responsible mens' hands, a competent stipend. Upon the Restoration, Dr. Basier was recalled by king Charles II. to England, in a letter written to Prince Ragotzi. But this unfortunate prince dying soon after, of the wounds he received in a battle with the Turks at Gyala, the care of his solemn obsequies was committed to the doctor by his relict, Princess Sophia, whereby he was kept a year longer out of England. At length, returning in 1661, he was restored to his preferments and dignities; and made chaplain in ordinary to king Charles II. He wrote several books on divinity. Having for many years after the Restoration, quietly enjoyed his large revenues, he died in 1676, aged sixty-nine. He wrote, 1. Deo et Ecclesiæ Sacrum, &c. 4to. Oxon. 1646; and 8vo. London, 1668. 2. Diatriba de Antiquâ Ecclesiæ Britannicæ Libertate, 8vo. Brug. 1656, which was translated into English under the title of The Ancient Liberty of the Britannic Church, &c. 8vo. 1661. 3. The History of the English and Scotch Presbytery, 8vo. London, 1659, 1660. 4. Oratio Privata, boni Theologi. (speciatim Concinnatoris Practici) Partes Præcipuas complectens, 8vo. London, 1670. 5. The Dead Man's Real Speech, &c.;

a funeral Sermon on the Death of Dr. John Cosin, Bishop of Durham, 8vo. London, 1673.

BASIL, in botany. See OCYMUM.

BASIL, or BASLE, a canton of Switzerland, see BASLE.

BASIL, in mechanics, the name, among joiners, for the sloping edge of a chisel, or of the iron of a plane. To work on soft wood, they usually make the basil twelve degrees, and for hard wood eighteen; it being remarked that the more acute the basil is, the better the instrument cuts; and the more obtuse, the stronger, and fitter it is for service.

BASIL, AMERICAN FIELD. See MONARDA

BASIL (ST.), the Great, one of the most learned and eloquent doctors of the church, was born at Cæsarea, in Cappadocia, about A.D. 328; and went to finish his studies at Athens, where he contracted a strict friendship with St. Gregory Nazianzen. He returned to his native country in 355, where he taught rhetoric. Some time after, he travelled into Syria, Egypt, and Lybia, to visit the monasteries of these countries; and the monastic life so much suited his disposition, that upon his return home he resolved to follow it, and he was the first institutor thereof in Pontus and Cappadocia. His reputation became so great, that, upon the death of Eusebius, bishop of Cæsarea, in 370, he was chosen his successor. It was with some difficulty that he accepted of this dignity; and no sooner was he raised to it than the emperor Valens began to persecute him, because he refused to embrace the Arian doctrine. He used his utmost endeavours to bring about a re-union between the eastern and western churches, who were then much divided, not only about points of faith, but with regard to Meletius and Paulinus, two bishops of Antioch; a dispute which was not terminated till nine months after his death. Basil had a share in all the disputes which happened in his time in the east, in regard to the doctrine of the church; and died January 1, 379.—There have been several editions of his works in Greek and Latin. The best is that of Father Garnier, printed in Greek and Latin, in three volumes folio. St. Basil's style is pure and elegant, his expressions are grand and sublime, and his thoughts noble and majestic. Erasmus places him among the greatest orators of antiquity.

BASIL (ST.), order of. The most ancient of all the religious orders. See BASILIAN.

BASIL STONE. See THYMUS.

BASIL, SYRIAN FIELD. See ZIZIPHORA.

BASIL, WILD. See THYMUS.

BASIL, a physician and heretic, whom Alexius Comnenus caused to be burnt alive in 1118. He held that God had another son besides Jesus Christ, called Sathanael, who, having revolted from his duty to his father, was expelled heaven, and cast to the earth, with the angels whom he had influenced to take part with him; and that Jesus Christ was afterwards sent to destroy his power, who shut him up in hell, and altered his name by cutting of the last syllable. He allowed his followers every thing in common, not excepting their wives.

BASILAN, one of the Philippine islands, in the midst of a cluster of smaller ones, off the south-west extremity of Magindanoa. It is mountainous, and about sixty miles in circumference, abounding in rice, sugar-cane, and bananas. Wild hogs and deer are the principal animals of the interior, which is watered by considerable streams, but thinly peopled. Distant eighteen miles from Magindanao. Long. 121° E., lat. 5° 50′ N.

BASILARE Os, in anatomy, a barbarous denomination given to the os sphenoides, on account of its being situated at the bottom or basis of the skull; or because a great part of the brain rests hereon, as on its basis.

BASILEUS, *βασιλευς*, a title assumed by the emperors of Constantinople, exclusive of all other princes, to whom they give the title rex, king. The same quality was afterwards given by them to the kings of Bulgaria, and to Charlemagne, from the successors of which last they endeavoured to wrest it back again. The title basileus has been since assumed by other kings, particularly the kings of England, Ego Edgar totius Angliæ basileus confirmavi. Hence also the queen of England was intitled basilea and basilissa.

BASILEUS, in ornithology, a name by which several of the old authors called the regulus cristatus, or golden-crowned wren.

BASILIAN Monks, the religious of the order of St. Basil. That saint having retired into a desert in the province of Pontus, founded a monastery for the convenience of himself and his numerous followers; and for the better regulation of the new society, drew up in writing the orders and rules he would have them follow. This order soon spread all over the east; nor was it long before it passed into the west. The rule of St. Basil was approved by Pope Liberius, the same year in which it was written and published; and afterwards by several other popes; and, in these last ages, by Pope Gregory III. who approved the abridgment made of it by cardinal Bessarion, in the pontificate of Eugenius IV. Some authors pretend, that St. Basil, before he died, saw himself the spiritual father of more than 90,000 monks, in the east only. But this order, which flourished so greatly for more than three centuries, was afterwards considerably diminished by heresy, schism, and a change of empire. The greatest storm it felt was in the reign of Constantine Copronymus; who persecuted the monks of St. Basil, imprisoning some, and banishing others; insomuch that the monasteries were abandoned and spoiled of all their goods. The historians of this order tell us, that it has produced 1805 bishops; and beatified, or acknowledged as saints, 3010 abbots, 11,805 martyrs, and an infinite number of confessors and virgins. They likewise place among the religious of the order of St. Basil, fourteen popes, some cardinals, and a very great number of patriarchs, archbishops, and bishops; and they boast of several emperors and empresses, kings and queens, princes and princesses, who have embraced its rules. This order was introduced in the west in 1057; and was reformed in 1567 by Pope Gregory XIII. who united the religious of this order in Italy, Spain, and Sicily into one congregation; of which the monastery of S.

Saviour at Messina is the chief, and enjoys pre-eminence over the rest. Each community has its particular rule, besides the rule of St. Basil, which is very general, and prescribes little more than the common duties of a Christian life.

Basilians. See Bogomili.

BASILIC, or Basilici, βασιλικη, a royal house, in the ancient architecture, denotes a kind of public hall or court of judicature, where the princes or magistrates sat to administer justice. The basilics consisted of a great hall, with aisles, porticoes, tribunes, and tribunals. The form was generally that of a parallelogram. The bankers had one part of the basilica allotted for their residence. The scholars also went thither to make their declamations, according to the testimony of Quintilian. In after times the denomination basilica was also given to other buildings of public use, as town-houses, exchanges, burses, and the like. The Roman basilicæ were covered, by which they were distinguished from the fora, which were public places open to the air. The first basilica was built at Rome by Cato the elder, whence it was called Portia; the second was called opimia; the third was that of Paulus, built with a great expense, and with much magnificence, whence it was called by some regia Pauli; another was built by Julius Cæsar, called basilica julia; of which Vitruvius tells us he had the direction. There are eighteen or twenty others.

Basilic is also used in ecclesiastical writers, for a church. In this sense, the word frequently occurs in St. Ambrose, St. Austin, St. Jerome, Sidonius Appollinaris, and other writers of the fourth and fifth centuries. It is thought that the name was thus applied, from many of the ancient churches having been formed of the Roman halls. In reality, on the conversion of Constantine, many of the ancient basilicæ were given to the church, and turned to another use, viz. for Christian assemblies to meet in; as may be collected from the passage in Ausonius, where speaking to the emperor Gratian, he tells him, the basilicæ, which heretofore were wont to be filled with men of business, were now thronged with votaries praying for his safety: by which he must needs mean, that the Roman halls or courts were turned into Christian churches: and hence the name came to be a general name for churches in after ages.

Basilic, is chiefly applied, in modern times, to churches of royal foundation; as those of St. John de Lateran, and St. Peter of the Vatican, at Rome, founded by the emperor Constantine.

Basilics, among the ancient Franks, were little chapels built over the tombs of their great men, so called, as resembling the figure of the sacred basilicæ, or churches. Persons of inferior condition had only tumbæ or porticuli erected over them. By an article in the Salique law, he that robbed a tumba or porticulus, was to be fined fifteen solidi; but he that robbed a basilica, thirty solidi.

Basilics, in literary history, a name supposed to have been given by the emperor Leo to a collection of laws in honor of his father Basilius I. who began it A. D. 867, and in the execution chiefly made use of Sabbathius Protospatharius, who carried the work as far as forty books. Leo added twenty books more, and published the work in 880. The whole, thirty years after, was corrected and improved by Constantine Porphyrogenitus, son of Leo: whence many have held him the author of the basilica. Six books of the basilica were translated into Latin in 1557, by Gentian Hervetus. An edition of the Greek basilics, with a Latin version, has been since published at Paris, in 1647, by Annibal Fabrottus, in seven volumes. There are still wanting nineteen books, which are supposed to be lost. Fabrottus has endeavoured to supply in some measure the defect, from the synopsis of the basilica and the glosses, of which several had been made under the succeeding emperors, and contained the whole Justinian law, excepting the superfluities, in a new and more consistent order, together with the later constitutions of the emperors posterior to Justinian.

BASILICA, in anatomy, the interior branch of the axillary vein, running the whole length of the arm. It is one of the veins opened in bleeding.

Basilica, or Basilicus, in astronomy, a fixed star of the first magnitude, in the constellation Leo; called also Regulus and Cor Leonis.

Basilica Julia not only served for the hearing of causes, but for the reception and audience of foreign ambassadors. It was supported by 100 marble pillars in four rows, and enriched with decorations of gold and precious stones. In it were thirteen tribunals or judgment seats, where the prætors sat to despatch causes. See Basilic.

Basilica, Modern. Palladio gives this name to the civil edifices which are found in many Italian cities, and the destination of which is entirely similar to the antique basilica. 'In imitation of the ancients,' says this celebrated architect, 'the cities of Italy construct public halls which may rightly be called basilicæ, as they form part of the habitation of the supreme magistrate, and in them the judges administer justice.' 'The basilicæ of our time,' he continues, 'differ in this from the ancient; that those were level with the ground, while ours are raised upon arches, in which are shops for various arts and merchandise of the city. There the prisons are also placed, and other buildings belonging to the public business. Another difference is, that the modern basilicæ have the porticoes on the outside, while in the ancient they were only in the interior. Of these halls there is a very noble one at Padua; and another at Brescia, remarkable for its size and ornaments.' The most celebrated of this kind is that of Vicenza; the exterior part of which was built by Palladio, and the whole so much altered that it may pass for his work. The body of the building is of much greater antiquity, though the date of it is unknown. Time, and various accidents had reduced this edifice to such a state of decay, that it was necessary to think seriously of preventing its total ruin: for this purpose the most eminent architects were consulted, and the design of Palladio was approved. He removed

the ancient loggias, and substituted new porticoes of a very beautiful invention. These form two galleries in height, the lower order of which is ornamented with Doric engaged columns, at very wide intervals, to answer to the internal pillars of the old buildings; the space between each column is occupied by an arch resting on two small columns of the same order, and a pilaster at each side against the large columns, which leaves a space between it and the small columns of two diameters The upper portico of Ionic columns is disposed in the same manner, and a balustrade is placed in the archway. The entablature of the large orders is profiled over each column.

This edifice is about 150 feet long and sixty feet broad; the hall is raised above the ground twenty-six feet; it is formed by vaults supported on pillars, and the whole is covered with a wooden dome.

BASILICATA, a territory of Italy, bounded on the north by the provinces of Otranto, Bari, and Capitanata, on the west by the Principato, and a small part of the Tuscan Sea, on the south by Calabria, and on the east by the Gulf of Taranto. It is watered by several rivers; but as it is almost all occupied by the Appennine mountains, it is neither very populous nor fertile; however, it produces enough to maintain its inhabitants, and has a small quantity of cotton. The principal towns are Acerenza the capital, Melfi, Tursi, Rapolla, Muro, Lavello, Tricarico, Monte Peloso, and Venesa, which are all episcopal sees. Its extent is about 1,605,047 moggie; five moggie being equivalent to four English acres; and it has a population of nearly 330,000 souls. It is watered by the Basiento, and several other streams. In this province are the ancient ruined cities of Heraclea and Metapontum.

BASILICI, *βασιλικοι*, in the Greek empire, was a denomination given to the prince's mandatories, or those who carried his orders.

Basilicon, in pharmacy, a name given to several compositions to be found in ancient medicinal writers. At present it is confined to three officinal ointments, distinguished by the epithets black, yellow, and green. See Pharmacy, &c.

Basilicon, or Basilicum, in pharmacy, is callee tetrapharmacum, as being composed of four simples, viz. resin, wax, pitch, and oil of olive.

BASILICUS Sinus, in ancient geography, the gulf of Mellasso, in Asia Minor, which separates Lycia and Caria.

BASILIDES, an Egyptian, who lived near the beginning of the second century. He was educated in the Gnostic school, over which Simon Magus is once said to have presided; and with whom he agreed that Christ was a man in appearance, that his body was a phantom, and that he gave his form to Simon the Cyrenian, who was crucified in his stead. We learn from Eusebius, that this heresiarch wrote twenty-four books upon the gospel, and that he forged several prophets; to two of which he gave the names barcaba and barcoph. We have still the fragment of a Basilidian gospel.

BASILIDIANS, a denomination, in the second century, from Basilides, chief of the Egyptian Gnostics. They acknowledged, according to ancient writers, the existence of one supreme God, perfect in goodness and wisdom, who produced from his own substance seven beings, or aions, of a most excellent nature. Two of these aions, called dynamis and sophia, i. e. power and wisdom, engendered the angels of the highest order. These angels formed a heaven for their habitation, and brought forth other angelic beings of a nature somewhat inferior to their own. Many other generations of angels followed. New heavens were also created, until the number of angelic orders, and of their respective heavens, amounted to 365, and thus equalled the days of the year. All these are under the empire of an omnipotent Lord, whom Basilides called Abraxas. The inhabitants of the lowest heavens, which touched upon the borders of the eternal, malignant, and self-animated matter, conceived the design of forming a world from that confused mass, and of creating an order of beings to people it. This design was carried into execution, and was approved by the supreme God, who to the animal life, with which only the inhabitants of this new world were at first endowed, added a reasonable soul, giving at the same time to the angels the empire over them.

These angelic beings, advanced to the government of the world which they had created, fell by degrees from their original purity, and soon manifested the fatal marks of their depravity and corruption. They not only endeavoured to efface in the minds of men their knowledge of the supreme Being, that they might be worshipped in his stead, but also began to war against each other, with an ambitious view to enlarge every one the bounds of his respective dominion. The most arrogant and turbulent of all these angelic spirits, was that which presided over the Jewish nation. Hence, the supreme God, beholding with compassion the miserable state of rational beings, who groaned under the contest of these jarring powers, sent from heaven his son Nus, or Christ, the chief of the aions, that, joined in a substantial union with the man Jesus, he might restore the knowledge of the supreme God, destroy the empire of those angelic natures which presided over the world, and particularly that of the arrogant leader of the Jewish people. The god of the Jews, alarmed at this, sent forth his ministers to seize the man Jesus and put him to death. They executed his commands; but their cruelty could not extend to Christ, against whom their efforts were vain Those souls who obey the precepts of the Son of God, shall, after the dissolution of their mortal frame, ascend to the Father, while their bodies return to the corrupt mass of matter whence they were formed. Disobedient spirits, on the contrary, shall pass successively into other bodies. There are several gems still subsisting, inscribed with the name Abraxas, which were used by the Basilidians as amulets against diseases and evil spirits. See Abraxas.

BASILIGOROD, or Vasiligorod, a town of Russia, seated on the Volga, where the Sara falls into it. The inhabitants are employed in agriculture and fishing. It is 112 leagues from Moscow.

BASILINEA, in entomology, a species of phalæna, a native of Austria.

BASILIPOTAMO, the ancient Eurotas, a

river of European Turkey, in the south of the Morea, which falls into the Gulf of Kolokythia, about four miles to the N. N. E. of the town of that name.

BASILIPPUM, in ancient geography, a town of Bætica, in Spain; now called Cantillana, a citadel of Andalusia, above Seville, on the Guadalquiver.

BASILISCUS, in alchemy, the sublimate mercury of the philosophers.

Basiliscus, in ornithology, a name given by some of the old authors to the regulus cristatus, or golden-crowned wren. It is a diminutive of basileus, king, another of its names, because of its golden crown.

Basiliscus, Basilicus, in zoology, a species of lacerta, which, according to Linnæus, has the tail long and round, dorsal fin radiated, and back of the head crested. This is the basilisk of modern naturalists, and seems to unite the two genera of lacerta and draco. The remarks of Dr. Shaw, in the Gen. Zool. on this extraordinary creature, are highly interesting, and ought not to escape attention. It is, accordiny to this writer, particularly distinguished by a long and broad wing-like process or expansion, continued along the whole length of the back, and to a very considerable distance on the upper part of the tail, and furnished at certain distances with internal radii, analagous to those in the fins of fishes, and still more so to those in the wings of the draco volans, or flying lizard. This process is of different elevations in different parts, so as to appear strongly sinuated and indented, and is capable of being either dilated or contracted at the pleasure of the animal. The occiput, or hind part of the head, is elevated into a very conspicuous pointed hood, or hollow crest.

'Notwithstanding its formidable appearance,' adds this author, 'the basilisk is a perfectly harmless animal; and like many others of the lizard tribe, resides principally among trees, where it feeds on insects, &c. It has long ago been admirably figured in the work of Seba; and as it is an extremely rare species, has sometimes been considered, from the strangeness of its form, as a fictitious representation. There is, however, in the British Museum, a very fine specimen, well preserved in spirits, and which fully confirms the excellency of Seba's figure; from which, in all probability, Linnæus himself, who never saw the animal, took his specific description. The color of the basilisk is a pale cinereous brown, with some darker variegations towards the upper part of the body. Its length is about a foot and a half. The young or small specimens have but a slight appearance either of the dorsal or caudal process, or of the pointed occipital crest. The basilisk is principally found in South America, and sometimes considerably exceeds the length before mentioned, measuring three feet, or even more, from the nose to the extremity of the tail. It is said to be an animal of great agility, and is capable of swimming occasionally with perfect ease, as well as of springing from tree to tree by the help of its dorsal crest, which it expands in order to support its flight.'

Among the French naturalists, the iguane is a distinct genus of the oviparous quadrupeds, in which the Linnæan lacerta basiliscus is included under the name of basilisk.

The basilisk of the ancients existed only in the glowing fancy of their poets: they feigned it to be the most malignant of all poisonous serpents; as a creature whose breath empoisoned the very air, and whose baneful glance would alone prove fatal to all other animals. A creature gifted with such extraordinary powers could have no common origin, and therefore it was asserted to be the produce of the egg of a cock brooded upon by a serpent. Galen says its color is yellowish, and that it has three little elevations on its head, speckled with whitish spots, that have somewhat the appearance of a crown. Ælian, Matthiolus, Pliny, Lucan, and others of the most distinguished ancients, relate many marvellous properties of this creature; but, notwithstanding their authority, the basilisk, as they represent it, is most unquestionably fabulous. It is needless to add to this article any of the fables of Jerome Lobo, although Dr. Johnson has received some of them with an unwarrantable degree of credulity. The learned Prosper Alpinus informs us, on the authority of some relations, which he seems to have credited, that near the lakes contiguous to the sources of the Nile, there is a number of basilisks, about a palm in length, and the thickness of a middle finger; that they have two large scales which they use as wings, and crests and combs upon their heads, from which they are called basilisci or reguli; that is, crowned, crested, or kingly serpents. And he says, that no person can approach these lakes without being destroyed by these crested snakes. Our traveller, Mr. Bruce, observes, that having examined the lake Goode-roo, those of Court Ohha and Tzana, the only lakes near the sources of the Nile, he never saw one serpent there, crowned or uncrowned; and that he never heard of any: and, therefore, he believes this account as fabulous as that of the acontia, and other animals, mentioned by Prosper Alpinus, lib. iv. cap. 4. The basilisk is a species of serpent frequently mentioned in scripture, though never described farther than that it cannot be charmed so as to do no hurt, nor trained so as to delight in music; which all travellers who have been in Egypt allow is very possible, and frequently seen, Jerem. viii. 17.: Psalm ix. 13. However, it is the Greek text that calls this serpent basilisk; the Hebrew generally calls it tsepha, which is a species of serpent real and known. Our English translation very improperly renders it cockatrice, a fabulous animal that never did exist. The basilisk of scripture seems to have been a snake, not a viper; as its eggs are mentioned, Isaiah ix. 5: whereas it is known to be the characteristic of the viper to bring forth living young. *Bruce's Travels in Abyssinia*, vol. v. p. 201.

BA'SILISK, *n. s.* Lat. *basiliscus*, from Gr *βασιλισκος*, of *βασιλευς*, a king. A serpent, thus denominated either because its head is adorned with a tuft like a diadem, or because of its superior strength it is the monarch of the reptile tribes. To this creature is ascribed the power of fascinating its victims with its eyes. See the article Basiliscus.

That sleth right as the *basilicok* sleth folk by a venime of his sight. *Chaucer. The Persones Tale.*

Basilisks! whose breath
Is killing poison, and whose looks are death.
Make me not sighted like the *basilisk*;
I've look'd on thousands who have sped the better
By my regard, but kill'd none so. *Shakspeare.*

Thine eyes, sweet lady, have infected mine.
LADY ANNE. Would they were *basilisks* to strike thee dead, *Id.*

The *basilisk* was a serpent not above three palms long, and differenced from other serpents by advancing his head, and some white marks or coronary spots upon the crown. *Brown's Vulgar Errours.*

BA'SILISK. A species of cannon or ordnance.

We practise to make swifter motions than any you have; and to make them stronger and more violent than your's are; exceeding your greatest cannons and *basilisks*. *Bacon.*

Your eyes, which hitherto have borne in them
Against the French, that met them in their bent,
The fatal balls of murdering *basilisks*. *Shakspeare.*

And thou hast talk'd
Of sallies, and retires; of trenches, tents,
Of palisadoes, frontiers, parapets;
Of *basilisks*, of cannon, culverin,
Of prisoner's ransom, and of soldiers slain. *Id.*

BASILISK, in military affairs, a piece of ordnance; thus denominated from its resemblance to the supposed serpent of that name. The basilisk has thrown an iron ball of 200 pound weight. It was much talked of in the time of Solyman, emperor of the Turks, in the wars of Hungary, but seems now out of use. Paulus Jovius relates the terrible slaughter made by a single ball from one of these basilisks in a Spanish ship; after penetrating the boards and planks in the ship's head, it killed above thirty men. Masseus speaks of basilisks made of brass, which were drawn each by 100 yoke of oxen. Modern writers also give the name basilisk to a much smaller and more sizeable piece of ordnance, which the Dutch make fifteen feet long, and the French only ten. It carries forty-eight pounds.

BASILISSA. See BASILEUS.

BASILIUS I. surnamed the Macedonian, emperor of the Greeks. He was a common soldier, and of an obscure family in Macedonia, and yet raised himself to the throne: for, having pleased the emperor Michael by his address in the management of his horses, he became his first equerry, and then his great chamberlain. He at length assassinated the famous Bardas, and was associated to the empire in 849. He held the eighth general council at Constantinople; deposed the patriarch Photius, but in 858 restored him to the patriarchate; and declared against the popes, who refused to admit him into their communion. He was dreaded by the Saracens, whom he frequently vanquished; and loved by his subjects for his justice and clemency. He died in 886. Under his reign the Russians embraced Christianity, and the doctrine of the Greek church.

BASILIUS II. succeeded Romanus II. as emperor of Constantinople, A. D. 903, and reigned along with his brother, Constantine IX., six years. This monarch is by some historians and chronologists confounded with Basilius III. who had also a brother colleague, called Constantine. See the next article.

BASILIUS III. succeeded John Zimisces, emperor of Constantinople, A. D. 975, and reigned, along with his brother Constantine X., for no less a period than fifty years. His brother survived him three years, the one dying in 1025, and the other in 1028. See CONSTANTINOPLE.

BASILUZZO, one of the Lipari islands.

BA'SIN, *n.* } Fr. *basin*; Ital. *bacile*, *bacino*;
BA'SINED. } it is often written bason, but not according to etymology. It is a term which designates a vessel in common use. It is also applied to any hollow place capacious of liquids, and is technically employed by anatomists and artizans, to express any substance hollowed out, a round cavity, or a concave.

But let us go now to that horrible swering of adjuration and conjuration, as don these false enchauntours and nigromancers in *basins* full of water, or in a bright swerd in a circle or in a fire, or in a sholder bone of a shepe: I cannot sayn but that they do cursedly and damnably ayenst Crist, and all the feith of holy chirche. *Chaucer. The Persones Tale.*

After that he poured water into a *basin*, and beganne to wash his disciples feet. *Bible*, 1551.

Let one attend him with a silver *basin*,
Full of rose-water, and bestrewed with flow'rs.
Shakspeare.

We have little wells for infusions, where the waters take the virtues quicker and better than in vessels and *basins*. *Bacon.*

And send her home
Divested to her flannell in a cart,
And let her footman beat the *bason* afore her.
Ben Jonson. New Inn.

With scornful sound of *bason*, pot and pan,
They thought to drive him thence, like bees in swarms. *Harr. Ariost.*

The jutting land two ample bays divides;
The spacious *basins* arching rocks inclose,
A sure defence from every storm that blows. *Pope.*

On one side of the walk you see the hollow basin with its several little plantations lying conveniently under the eye of the beholder. *Spectator.*

If this rotation does the seas affect,
The rapid motion rather would eject
The stores the low capacious caves contain,
And from its ample *basin* cast the main.
Blackmore.

From step to step, with sullen sound,
The forc'd cascades indignant leap;
Now sinking fill the *bason's* measur'd round;
There in a dull stagnation doom'd to sleep.
Mason. Ode to a water-nymph.

Thy *basin'd* rivers and imprison'd seas.
Young's Night Thoughts.

BASING, a village of Hampshire, north of Basingstoke, near which, in 871, Alfred was defeated by the Danes. It is equally memorable for the protracted siege sustained here by John, the fifth marquis of Worcester, in his seat of Basing-house, against the forces of the Parliament. The investment commenced August 1643, and the answer made by the marquis to the first summons was, that 'if the king had no more ground in England than Basing-house, he would maintain it to the uttermost.' It stood out till October, 1645, when Cromwell took it by storm, and burnt it to the ground. A saying still exists in the neighbourhood, 'clubs trump as when Basing-house was taken;' and tradition refers this to the surprise of the garrison, who were at cards when finally assaulted. The mar-

quis had written with a diamond on every pane of glass, Aymez Loyaulté, which is still the family motto. The plunder obtained by the parliamentary forces amounted to £200,000, but their loss before the walls exceeded 2000 men. See Journal of the siege of Basing-house, Oxford, 1645.

BASINGE (John), more commonly known by the name of Basingstochius, or de Basingstoke, was born at Basingstoke, a town of Hampshire, and from thence took his surname. He was a person highly eminent for virtue and learning. For having very good natural parts, he so improved them by study, that he became a perfect master of the Latin and Greek languages, an eminent orator, a complete mathematician, a subtle philosopher, and a sound divine. The foundation of his great learning he laid in the university of Oxford, and, for his further improvement, went to Paris, where he resided some years. He then travelled to Athens, where he made many curious observations, and perfected himself in his studies, particularly in the knowledge of the Greek tongue. At his return to England, he brought over with him several curious Greek manuscripts, and introduced the use of the Greek numeral figures into this kingdom. He became also a very great promoter and encourager of that language, which was much neglected in these western parts of the world; and to facilitate it, he translated from the Greek into Latin a grammar, which he entitled The Donatus of the Greeks. He was archdeacon of London, and afterwards, of Leicester. He died in 1252.

BASINGSTOKE, a market town in Hampshire, which by means of a canal, begun in 1778, carries on an extensive trade. Population in 1821, 3165. The church is a vicarage, in the patronage of Magdalen college, Oxford. One of its vicars, Sir George Wheeler, the celebrated eastern traveller, annexed a library to the church. This town was the birth place of Joseph and Thomas Warton, whose father was vicar. It lies sixteen miles north-east of Winchester, and forty-six from London.

BASIOGLOSSUS, a muscle arising from the base of the os hyoides. See Anatomy.

BA'SIS. Lat. *basis*; *βασις*, from *βαινω*, I go. See Base. The foundation or the first principle of any thing; the lowest of the three principal parts of a column, which are the basis, shaft and capital.

It must follow, that Paradise, being raised to this height, must have the compass of the whole earth for a *basis* and foundation. *Raleigh.*

How many times shall Cæsar bleed in sport,
That now on Pompey's *basis* lies along
No worthier than the dust! *Shakspeare.*

Ascend my chariot, guide the rapid wheels
That shake heaven's *basis*. *Milton.*

In altarwise a stately pile they rear;
The *basis* broad below and top advanc'd in air.
Dryden.

——The friendships of the world are oft
Confederacies in vice, or leagues of pleasure;
Ours has severest virtue for its *basis*. *Addison.*

Or if no *basis* bear my rising name,
But the fall'n ruins of another's fame,
Then teach me, heaven! to scorn the guilty bays,
Drive from my breast that wretched lust of praise.
Pope. Temple of Fame.

Basis, in ancient music and poetry, denotes the equability of sounds proceeding in the same tenor, and stands contradistinguished from arsis, or elevation, as well as from thesis or depression.

Basis, or Base, in chemistry, any body which is dissolved by another body, which it receives and fixes, and with which it forms a compound, may be called the basis of that compound. Thus, for example, the bases of neutral salts are the alkaline, earthy, and metallic matters which are saturated by the several acids, and form with them these neutral salts. In this sense it is that these neutral salts are called salts with earthy bases, salts with alkaline bases, salts with metallic bases; also the appellations basis of alum, basis of nitre, basis of Glauber salt, basis of vitriol, &c. signifying the argillaceous earth, which, with the vitriolic acid, forms alum; the vegetable alkali, which, with the nitrous acid, forms nitre; the mineral alkali, which, with the vitriolic acid, forms Glauber's salt; and the metal which, with the vitriolic acid, forms a vitriol; because the substances are supposed to be fixed, unactive, and only yielding to the action of the acids, which they fix, and to which they give a body and consistence.

Basis or Base, in geometry. See Base.

Basis, in oratory, denotes the fourth member of a complete exordium, being that which succeeds the apodosis, and prepares the way for the proposition.

Basis, in pharmacy, the principal ingredient in compound medicines.

BASIUM, Lat. a kiss, a word used by chemists, for an extemporaneous tincture of iron and copper, invented by Clossæus.

BASK, *v. a.* & *n.* } *Backeren*, Dutch, pro-
Basking. } bably from the verb to bake; to warm by exposure to heat, whether of the sun or fire; to lie in the warmth, used, says Johnson, almost always of animals; and, if in the term animals he includes man, he is not far from the truth; though it is sometimes applied to reptiles.

As I live by food, I met a fool,
Who laid him down, and *bask'd* him in the sun,
And rail'd on lady fortune in good terms,
In good set terms, and yet a motley fool.
Shakspeare.

Loue in her sunny eyes does *basking* play,
Loue walks the pleasant mazes of her hair;
Loue does on both her lips for ever stray,
And sows and reaps a thousand kisses there.
Cowley. The Change.

Then lies him down the lubber fiend,
And stretch'd out all the chimney's length
Basks at the fire his hairy strength. *Milton.*

'Tis all thy business, business how to shun,
To *bask* thy naked body in the sun. *Dryden.*

About him, and above, and round the wood,
The birds that haunt the borders of his flood,
That bath'd within, or *bask'd* upon his side,
To tuneful songs their narrow throats applied. *Id.*

Some in the fields of purest æther play,
And *bask* and whiten in the blaze of day. *Pope.*

Unlock'd in covers let her freely run
To range thy courts, and *bask* before the sun.
Tickell.

O life! thou universal wish; what art thou?
Thou'rt but a day—a few uneasy hours:

Thy morn is greeted by the flocks and herds,
And every bird that flatters with its note,
Salutes thy rising sun: thy noon approaching,
Then haste the flies, and every creeping insect,
To *bask* in thy meridian; that declining,
As quickly they depart, and leave thy evening
To mourn the absent ray: the night at hand,
Then croaks the raven conscience of time mispent,
The owl despair screams hideous, and the bat
Confusion, flutters up and down:
Life's but a lengthen'd day, not worth the waking for.
Howard's Charles I.

The naked negro, panting at the Line,
Boasts of his golden sands and palmy wine;
Basks in the glare, or stems the tepid wave,
And thanks the gods for all the good they gave.
Goldsmith's Traveller.

Too late, all lost, for ever lost, he sees
The envy'd saints triumphing from afar,
And angels *basking* in the smiles of God. *Rowe.*

Childe Harolde *bask'd* him in the noontide sun
Disporting there like any other fly.
Byron. Childe Harold.

BASKERVILLE (John), an eminent artist, especially in letter-founding and printing, was born in 1706, at Woverley in Worcestershire, and was heir to an estate of about £60 a year; the whole income of which he allowed to his parents till their deaths. In his early years he conceived a love for fine writing, and cutting in stone; and, being brought up to no particular profession, he commenced writing-master in Birmingham when about twenty years of age. The improvements in different manufactures there soon drew his attention, and he applied to the japan business, which he carried on for a long time with distinguished excellence and success. In 1750 he applied himself to letter-founding, the bringing of which to perfection cost him much labor and expense. In a few years he proceeded to printing; and his first work was an edition of Virgil, in royal 4to. which now sells for three guineas. He obtained leave from the university of Cambridge to print a bible in royal folio, and editions of the common prayer-book, in three sizes; for which he paid a large sum. He afterwards printed Horace, Terence, Catullus, Lucretius, Juvenal, Sallust, and Florus, in royal 4to; Virgil in 8vo.; and several books in 12mo. He published, likewise, some of the English classics. These performances are the best testimonies of Mr. Baskerville's merit; and his name is deservedly ranked among those who, in modern times, have brought the art of printing to its greatest perfection. Not meeting, however, with that encouragement from the booksellers, which he expected, he set up a letter-foundry for sale, a little before his death. He died without issue in 1775.

BASKERVILLE (Sir Simon), an eminent anatomist, and physician to king James I. and Charles I. was the son of Thomas Baskerville, apothecary, and born at Exeter in 1573. He studied at Oxford, where he early displayed his abilities, and at last took his degrees of B. D. and M. D. in 1611. He afterwards settled at London, where he became a member, and was for some time president of the college of physicians. His reputation for learning and medicine, attracted the attention and esteem of the two sovereigns above-mentioned, the latter of whom knighted him. He wrote some memoirs of his own life and times, and died in 1641, aged sixty-eight.

BA'SKET, *n. s. basged*, welch; *bascauda*, Latin; perhaps, from the French *bosse*, or from some British word signifying *rush*; basket is a vessel or utensil formed of osiers, rushes, of twigs, splinters, or other slender bodies interwoven.

For I wol preche and beg in sondry londes,
I wol not do no labour with min hondes,
Ne make *baskettes* for to live there by,
Because I wol not beggen idelly.
Chaucer. The Pardoneres Tale.

Here is a *basket:* he may creep in, and throw foul linen upon him, as if going to bucking. *Shakspeare.*

Set down the *basket*, villain:—Somebody call my wife:—You youth in a *basket* come out here. *Id.*

He threw out, to save life,
Your British *baskets*, with a thousand dishes.
Holyday's Juvenal.

Poor Peg was forced to go hawking and puddling; now and then carrying a *basket* of fish to the market.
Arbuthnot.

His puissant sword unto his side,
Near his undaunted heart, was ty'd,
With *basket*-hilt that would hold broth,
And serve for fight and dinner both. *Hudibras.*

There was a time,
When other regions were the swain's delight;
And shepherdless Britannia's rushy vales,
Inglorious, neither trade nor labour knew,
But of rude *baskets*, homely rustic geer,
Woven of the flexile willow. *Dyer. The Fleece.*

BASKET, as a measure, denotes an uncertain quantity; as, a basket of medlers is two bushels, of assafœtida from twenty to thirty pound weight. The ancient Britons were noted for their ingenuity in making baskets, which they exported in large quantities. They were of very elegant workmanship, and bore a high price. Martial takes notice of them:—

Barbara de pictis veni bascauda Britannis,
Sed me jam mavult dicere Roma suam.
'A basket I, by painted Britons wrought,
And now to Rome's imperial city brought.'

Baskets are generally made of osiers, stripped of their bark, and dressed according to the design of the basket. Large baskets or hampers are made without any preparation but soaking the wood, which is necessary for every size of basket. No great capital of money or ingenuity is requisite to follow the business of a basket-maker; yet some practice as well as dexterity would seem necessary in forming fruit baskets used on tables, work baskets, table mats, &c.

BASKET, CORBEILLE, in architecture, a kind of vase, or figure piece of sculpture, in form of a basket, filled with flowers or fruits, serving to terminate some decoration.

BASKET FISH a species of sea-star. See ASTERIAS.

BASKET-MAKING, the weaving of reeds, twigs, or leaves together, for baskets, is an art in use among the rudest nations of the world; even an inferior specimen is seen among the natives of Van Diemen's Land, consisting of a bunch of rushes tied together at each end, and spread out in the middle. Other tribes of this neighbourhood make a basket of leaves interwoven, so skilfully executed, that it retains either milk or water

Very early in our history it is recorded that our ancestors made baskets, which were celebrated at Rome. At the same period, shields of wicker-work, plain or covered with hides, were common in Britain; wicker boats, &c. Herodotus speaks of boats of this kind, covered with bitumen, on the Tigris and Euphrates. Such boats, about seven feet in diameter, are said to be used at the present day on these rivers; and similar ones, we know, are employed in crossing the most rapid streams of India. They are generally of a shallow construction, from three to fifteen feet in diameter; some will carry thirty men. They are made thus:—A number of pieces of split bamboo, twenty for example, are laid on the ground, crossing each other near the centre, and there fastened with thongs; the ends of the bamboos are then elevated by several persons, and fixed asunder at due distance by means of stakes, in which position they are bound by other long slips of bamboo. The latter are introduced alternately over and under the pieces first crossed, and tied at the intersections to preserve the shape. This being completed, beginning from the bottom to the centre, the parts above the intended height or depth of the basket-boat are cut off, and it is liberated from the stakes reversed, and covered with half-dressed hides sewed together with thongs. Six men will make one of these boats in as many hours. They are navigated by paddles where the water is deep, or are pushed over a shallow bottom with long poles; and the passengers are kept dry by planks at the bottom. The basket-boats on the river Kristna, in Hindostan, are about twelve feet in diameter, and four feet deep. Armies have been enabled by these conveyances to continue their march, and even heavy artillery has been transported by them. Sometimes they are towed by bullocks. In other parts of the world, houses, cottages, fences, and gates, are formed of basket or wicker-work. On the continent, a two-horse carriage, called a Holstein waggon, of very considerable size, and fit to carry several persons, is composed of basket-work; the same is done in Great Britain with regard to the bodies of gigs; and an appendage of the stage-coaches, we know, is literally denominated the basket.

This is an art therefore, however humble in some of its branches, too extensively and too serviceably in exercise not to merit more attention than books of science have usually bestowed upon it. The materials employed have been very various. Twigs, branches, straw, and whalebone, rushes, roots of plants, the bowing bamboo, and the supple osier. The natives of some parts of South America make baskets of rushes, so closely interwoven as to hold water, and thousands of them are annually sold throughout the new republics. The Caffres and Hottentots are alike skilful with roots. Osiers or willows, however, are most adapted for this use. These are either taken entire, cut from the root, split asunder, or stripped of their bark, according to the work to be produced; in the latter case, they are previously well soaked. The stripping is performed by drawing the willows through an iron-edged instrument called brakes, which removes the bark, and the willows are then cleaned, so far as necessary, by the manual operation of a sharp knife. Next they are exposed to the sun and air, and afterwards placed in a dry situation. But it is not less necessary to preserve willows with their bark in the same manner, for nothing can be more injurious than the humidity inherent in the plant; and previous to use, they must be soaked in water some days. The barked or white osier is then divided into bundles or faggots according to size; the larger being reserved to form the strong work in the skeleton of the basket, and the smaller for weaving the bottom and sides. Should the latter be applied to ordinary work, they are taken whole, but for implements of slight and finer texture, each osier is divided into splits and skeins; which names denote the different degrees of size to which they are reduced. Splits are osiers cleft into four parts, by means of a particular implement employed for that purpose, consisting of two edge tools placed at right angles, whereby the rod is longitudinally divided down the pith. These are next drawn through an implement resembling the common spoke-shave, keeping the grain of the split next the wood or stock of the shave, while the pith is presented to the edge of the iron, which is set in an oblique direction to the wood: And, in order to bring the split into a shape still more regular, it is passed through another implement called an upright, consisting of a flat piece of steel, each end of which is fashioned into a cutting edge, like that of an ordinary chisel. The flat is bent round, so that the two edges approach each other at a greater or less interval by means of regulating screws, and the whole is fixed in a handle. By passing the splits between the two edges, they are reduced to skeins, the thickness of which is determined by the interval between the edges of the tool. All the implements required by a basket-maker are few and simple: they consist, besides the preceding, of knives, bodkins, and drills for boring, leads for keeping the work steady while in process, and where it is of small dimensions, a heavy piece of iron, called a beater, which is employed to beat the basket close as it is augmented.

In making an ordinary basket, the osiers are laid out in a length considerably greater than that of the finished work. They are ranged in pairs on the floor parallel to each other, at small intervals, in the direction of the longer diameter; and this may be called the woof, for basket work is in fact a web. These parallel rods are then crossed at right angles by two of the largest osiers, with the thick ends towards the workman, who places his foot upon them; and weaving each alternately over and under the parallel pieces first laid down, they are by that means confined in their places. The whole now forms what is technically called the slat or slate, which is the foundation of the basket. Next, the long end of one of the two rods is taken, and woven under and over the pairs of short ends all round the bottom, until the whole be woven in. The same is done with the other rod; and then additional long osiers are also woven in, until the bottom be of sufficient size, and the woof be occupied by them. Thus the bottom, or foundation on which the superstructure is to be raised, is finished; and

this latter part is accomplished by sharpening the large ends of as many long and stout osiers as may be necessary to form the ribs or skeleton. These are forced or plaited between the rods of the bottom, from the edge towards the centre, and are turned up in the direction of the sides; then other rods are woven in and out between each of them, until the basket is raised to the intended height, or, more correctly speaking, the depth it is to receive. The edge or brim is finished by turning down the perpendicular ends of the ribs, now protruding and standing up over each other, whereby the whole are firmly and compactly united. A handle is adapted to the work, by forcing two or three osiers sharpened at the end, and cut to the requisite length, down the weaving of the sides, close together; and they are pinned fast, about two inches from the brim, in order that the handle, when completed, may be retained in its proper position. The osiers are then either bound or plaited, in such fashion as pleases the taste of the artist. This is the most simple kind of basket; some are of finer materials, and nicer execution. The skeins are frequently smoked and dyed, of different colors, by intermixing which, a good effect is produced.

At Liverpool, where there is an asylum for the blind, this art has, from its happy simplicity, been extensively taught, and is practised with success. In the city of Edinburgh, a number of the blind find similar employment in a blind asylum.

Some of the best materials for basket-making have been imported into Great Britain from France and Holland; but the duration of the war induced the inhabitants of this country to endeavour to obtain a home supply; and Mr. Philips, of Ely, has received a premium from the Society of Arts, on account of his excellent observations on this subject. He also has been very successful in his cultivation of the osier. Of nine or ten species of osier, he remarks that only one, the grey or brinkled osier is of any use. See Transactions of the Society, and our article Osier.

Basking Shark, in ichthyology, a species of shark, the squalus maximus of Linnæus, so called from its lying in the sun on the surface of the water. This fish inhabits the Arctic and European seas, feeds on the smaller cetaceous animals, and grows to a prodigious size, but is not very fierce. The liver is very large, and produces much oil. See Squalus.

BASLE, Bale, or Basil. One of the nineteen cantons of Switzerland, which joined the confederacy in the year 1501. It is bounded on the south by the canton of Solothurn; on the north by the Brisgau; on the east by Frickthal; and on the west by part of Solothurn, the former diocese of Basle, and the Sundgau; being upwards of twenty miles in length, and about eighteen in breadth. It contains three towns, twenty-seven parishes, seven bailiwics, and 38,000 inhabitants; the supposed area being about 181 square miles. Although the mountains are barren, the lower parts are fruitful in corn and wine, and fit for pasture; hemp also abounds here. It has many medicinal springs and baths, and the air is wholesome and temperate. The people are protestants: both men and women for the most part wear the French dress; but the language commonly spoken is German, though the French also is much used. By the constitution of 1803, the legislative power is vested in the large council of 135, elected from among the citizens at large; it assembles every half year in the town of Basle, and sits for a fortnight at a time. The executive power is intrusted to the small council of twenty-five, chosen from among the members of the large council, and having at its head two burgomasters, who preside alternately. The whole canton is divided into the three districts of Basle (the town), Wallenburg, and Liestal, each of which is subdivided into fifteen corporations. Every inhabitant who rents land or houses to the value of 500 Swiss francs, has a seat in one of these corporations, and is by virtue of it entitled to vote at the election of members for the large council. This canton sends three representatives to the diet. Before the revolution its government was aristocratical; and its revenues arise chiefly from secularised abbeys, and imposts on goods carried through the country, to and from France, Italy, and Germany. Besides the military establishment of the city of Basle, there were two provincial regiments, consisting each of ten companies, and a troop of dragoons. At present the country furnishes two regiments of militia, each consisting of nine companies of fusileers, a company of grenadiers, and one of dragoons. Manufacturing establishments are found in every corner, particularly for those of silk, cotton, ribbons and paper. The clergy form in the capital a convention, and in the country three chapters; over all these the first pastor of the cathedral presides. Basle was the first canton which separated from the Helvetic confederacy, and adopted the new constitution; and here, it is said, the first paper of modern times was manufactured.

Basle, or Bale, the capital of this canton, is the largest city in Switzerland, having upwards of 200 streets, and six market-places or squares. Its environs are exceedingly beautiful, consisting of a fine level tract of fields and meadows. The city is divided into two parts by the Rhine, over which there is a handsome bridge; the larger on the side of Switzerland, the lesser on that of Germany. It is thought by some to have risen on the ruins of the old Augusta Rauracorum. For its name it is indebted to Julian the Apostate, who named it in honor of his mother Basilina. The houses are well built, but thinly peopled, Basle containing at present only 15,000 inhabitants, whereas in former times the town was crowded to excess. A hereditary enmity subsists between the inhabitants of the two divisions. The minster, or cathedral church, the town-house, and the arsenal, are objects worthy of attention. The university, founded here in 1459, has an excellent library, a cabinet of medals, and botanic garden; the town has given birth to a number of eminent characters, particularly Œcolampadius, Grynæus, Buxtorf, Wetstein, Hermann, the Bernouillis, and Euler; Erasmus too resided here for many years, and lies interred in the cathedral. The commerce is extensive and flourishing, and is maintained chiefly by the manufacture of silk ribbons. The other manufactures of consequence are, silk stuffs

cotton, paper, linen, and gloves; there are also considerable bleachfields and dye-houses. The highest administrative power belongs to the large council of 280, out of which are chosen the members of the smaller council of 60. The Teutonic and Maltese orders have each a commander at Basle. It was remarked as a singularity in the clocks of this town, that they always struck an hour sooner than elsewhere; but this peculiarity no longer exists. Basle was formerly a city of the empire, and only ceased to be so on its joining the Swiss confederacy in 1501. Here was held a famous ecclesiastical council, between the years 1431 and 1444.

Basle was once the name of an independent bishopric, which had the Sundgau to the north, the canton of Basle to the east, that of Solothurn to the south, and Franche Comté to the west. The bishop was a prince of the empire, and had a seat and vote at the diet of the Upper Rhine. He was at the same time in alliance with the seven catholic cantons, but was never called to the meetings of the Swiss diet. His ordinary residence was at Porentrui. The whole bishopric contained, on 420 square miles, between 39,000 and 40,000 inhabitants. The nett revenue was valued at £20,000 sterling, to which the mines contributed between £3000 and £4000. In 1792 the French took possession of that part of the bishopric which belonged to the German empire, and formed it into a department of their republic, under the name of Mont Terrible, with which they soon after incorporated several of the other districts that were previously connected with Switzerland. After this it was included in the department of the Upper Rhine. In 1815 the bishopric of Basle, with the town and territory of Bienne, was united to the Swiss republic, by the congress of Vienna, and now forms part of the canton of Berne.

BASMAN, an island in the Persian gulf, five miles long, in the centre of which is a high hill. Lat. 25° 24′ N.

BASNAGE (Henry), Sieur de Beauval, second son to Henry Basnage, and brother to James. He was admitted advocate in the parliament of Rouen, in 1679. He did not follow the bar immediately upon his admission; but went to Valencia, where he studied under M. de Marville. Upon his return, he practised with great reputation till 1687, when the revocation of the edict of Nantz obliged him to fly to Holland, where he composed the greatest part of his works, and died in 1710. His chief work is Histoire des Ouvrages des Sçavans. Rotterd. 24 vols. in 12mo. This work was begun in September 1687, and continued till June 1709. When he arrived in Holland, Mr. Bayle, through indisposition, had been obliged to drop his Nouvelles de la Republique des Lettres, which induced Mr. Basnage to undertake a work of the same kind, under a different title.

Basnage (James), a learned author, and pastor of the Walloon church at the Hague, was born at Rouen in Normandy, in 1653. He was the son of Henry Basnage, one of the ablest advocates in the parliament of Normandy. At seventeen years of age, after he had made himself master of the Greek and Latin authors, as well as the English, Spanish, and Italian languages, he went to Geneva, where he began his divinity studies under Mestrezat, Turretin, and Tronchin; and finished them at Sedan, under the professors Jurieu and Le Blanc de Beaulieu. He then returned to Rouen, where he was received as minster, September 1676; in which capacity he remained till 1685, when, the exercise of the Protestant religion being suppressed at Rouen, he retired to Rotterdam, and was a minister pensionary there till 1691, when he was chosen pastor of the Walloon church of that city. In the year 1709 Pensionary Heinsius got him chosen one of the pastors of the Walloon church at the Hague, intending not only to employ him in religious but in state affairs. He was employed in a secret negociation with Marshal d'Uxelles, plenipotentiary of France at the congress of Utrecht; and he executed it with so much success, that he was afterwards entrusted with several important commissions, all which he discharged in such a manner as to gain a great character for his abilities and address; a celebrated modern writer has therefore said of him, that he was fitter to be a minister of state than of a parish. The abbe du Bois, who was at the Hague in 1716, as ambassador plenipotentiary from France, to negociate a defensive alliance between France, England, and the States General, was ordered by the duke of Orleans, regent of France, to apply himself to M. Basnage, and to follow his advice; they accordingly acted in concert, and the alliance was concluded in January 1717; and in return for his services he obtained the restoration of all his property in France. The catholics esteemed him no less than the protestants; and the works he wrote, which are mostly in French, spread his reputation almost all over Europe; among these are, 1. The history of the Religion of the Reformed Churches. 2. Jewish Antiquities. 3. The History of the Old and New Testament; and many others. He died Sept. 12, 1723.

BASNET (Edward), dean of St. Patrick's, Dublin. He was born in Denbighshire, in Wales, and was preferred to the dean of St. Patrick's about 1537. He was a zealous promoter of the Reformation, and in 1539, when the rebellion of O'Neal broke out, he laid aside the dress of the dean for that of the soldier, and joined the army under the lord deputy. For his good services he was made a privy counsellor, and besides other marks of royal favor, had the lands of Kiltearn, in the neighbourhood of Dublin, assigned to him by the crown. He died in the reign of Edward VI.

BASNETUM, low Lat. a helmet. *Bailey.*

Bason, bassin, Fr. See Basin.

Bason, in anatomy, pelvis. 1. A round cavity in form of a tunnel, situate between the anterior ventricles of the brain, descending from its base, and ending in the point at the glandula pituitaria. It is formed of the pia mater, and receives the pituita, which comes from the brain, and passes through the pituitary gland, and thence into the veins. 2. That capacity is also called pelvis, or bason, which is formed by the ossa ilia and os sacrum, and contains the bladder of urine, the matrix, and the intestines.

Bason, in glass-grinding, or dish. Glass-grinders use various kinds of basons, of copper, iron, &c. and of various forms, some deeper, others shallower, according to the focus of the glasses that are to be ground. In these basons, convex glasses are formed, as concave ones are on spheres or bowls. Glasses are worked in basons two ways. In the first, the bason is fitted to the arbor, or tree of a lath, and the glass, fixed with cement to a handle of wood, is presented and held fast in the right hand within the bason, while the proper motion is given by the foot of the bason. In the other, the bason is fixed to a stand or block, and the glass with its wooden handle moved. The movable basons are very small, seldom exceeding five or six inches in diameter; the others are larger, sometimes above ten feet diameter. After the glass has been ground in the bason, it is brought smoother with grease and emery, polished with tripoli, and finished with paper cemented to the bottom of the bason.

Bason, in hat-making, a large round shell or case, ordinarily of iron, placed over a furnace; wherein the matter of the hat is moulded into form. The hatters have also basons for the brims of hats, usually of lead, having an aperture in the middle, of a diameter sufficient for the largest block to go through.

Bason, in hydraulics, a reservoir of water, as the bason of a jet d'eau, or fountain; the bason of a port or harbour, of a bath, &c. Basons are made with clay, cement, or lead; but the diameter must be made four feet longer on each side than the bason is to be. This will be taken up by the walls of clay. For the same reason, it must be dug two feet deeper than the intended depth of the water; because it is to be laid over eighteen inches thick with clay, and six inches with gravel and paving. The wall is to be made with shards, rubbish, or flints, with the natural earth for mortar; and the clay must be well worked, and trod firmly down with the naked feet. The way of making them with cement is, to allow one foot nine inches every way for the work; then cut the banks perpendicularly, and raise a wall of masonry a foot thick, made of pebble stones, or the like, laid in a mortar of lime and sand; the bottom is then to be covered to the same thickness; and then the solid lining of the cement is to be backed up against the walls, and over the bottom. This is to be made of small flints in beds of mortar, made of lime and cement. When this solid is eight inches thick, it must be plastered over the whole surface with cement, well sifted, before it be mixed with the lime; and with this it is to be wrought over smooth with a trowel. The proportion of this cement should be two-thirds of the cement, or powdered tile, to one-third of lime; and this cement has the property of hardening so under water, that it will become like stone or marble, and it will not be subject to decay for a long time. After the finishing, the bason should, for four or five days, be anointed over very often with oil, or bullock's blood, to keep it from flawing or cracking in the drying; and after this, the water should be let in as soon as may be. The leaded basons are made with walls a foot thick, and a bottom of half a foot. These must be of rubble stones cemented with plaster; for the lime will injure and eat the lead. The sheets of lead are to be spread over these walls and bottom, and seamed with solder. These basons, however, are but little in use now, from the expense of making them, and the danger of the lead being stolen. The waste pipes of fountains ought always to be made large enough for fear of choking. When the waste water is to be carried off in common sewers, it may be carried away in drains, or earthen pipes; but when it is to serve for basons that lie below it, it is to be conveyed in leaden ones.—There are divers sorts of basons; as

1. Bason en Coquille, that shaped like a shell.

2. Bason, Figured, that whose plane or circumference makes several turns and returns, either straight, circular, or the like. Such are most of the basons of fountains at Rome.

3. Bason with a Balustrade, that whose cavity is surrounded with a balustrade of stone, marble, brass, or the like.

4. Bason with a Trench, bassin a rigole, that whose border being of marble, or other stone, has a trench cut in it, whence, at certain distances, springs out a thread of water, which lines the trench, and forms a kind of nape or gargle around the balustrade. Such is that of the fountain of the rock of the Belvidere at Rome.

Bason, in ship-building, a circular dock for the reception of ships.

Bason, Sale by the, at Amsterdam, is used for the public sales made under the direction of the vendu meester; so called, by reason that, before adjudging the lot or commodity to the last bidder, they strike a brass bason, to give notice of it.

Basons of a Balance, two pieces of brass, or other matter, fastened to the extremities of the strings; the one to hold the weight, the other the thing to be weighed.

BASOUDHA, a town of Hindostan, in the district of Bilsah. Long. 78° 13′ E., lat. 23° 54′ N.

BASQUE Island, an island in the river St. Lawrence, near the coast of Lower Canada. Long. 68° 52′ W., lat. 48° 15′ N.

BASQUES Les, or French Biscay, a district of Gascony, France, which has the Bay of Biscay on the west, the river Adour and the Landes on the north, Bearn on the east, and the Pyrenees on the south. It was formerly subdivided into the three territories of Labour, Lower Navarre, and Soule, and is now included in the department of the Lower Pyrenees. It is very mountainous, and rather barren; it rears, however, a number of cattle. The inhabitants use a dialect which resembles that of the Spanish Biscayans, and is supposed to be a variety of the Celtic. The agility of the inhabitants is proverbial. It is not easy to imagine more grace and expression than they display in their motions, or the spirit and activity of their dances.

Basques, Rio de, a river in the province and government of Costa Rica, kingdom of Guatemala, which falls into the Atlantic.

BASQUEVILLE, or Baqueville, a town of France, in Lower Normandy, with 2190 inhabitants. Here are manufactures of serge, matrasses, and woollen stuffs. It had the title of county before the revolution, and is now the head of a canton, in the department of the Lower Seine, arrondissement of Dieppe. It is ten miles S. W. of Dieppe, and twenty-eight N. of Rouen.

BASRAH. See Bassora.

BASRODE, a town of the Netherlands, in Flanders, on the Scheldt, near Dendermonde. It contains 2150 inhabitants.

BASS, } This is the word from which
Ba'ssock. } basket is supposed to be derived; our gardeners even now call the soft sedge or rush with which they bind plants *bass*, which is the meaning of the word in the following citation from Mortimer.

Having woollen yarn, *bass* mat, or such like, to bind them withal. *Mortimer's Husbandry.*

BASS, *n. s.*, in Cumberland, a river-fish, of the perch kind; in Hampshire, a sea perch.

Bass, in gardening, a soft kind of sedge or rush, used in binding plants, &c.

Bass, in geography, an insulated rock, about a mile in circumference, in the mouth of the Frith of Forth, at a small distance from the town of North Berwick, in East Lothian. It is steep and inaccessible on all sides, except on the S. W. and even there it is with great difficulty that a single man can climb up with the help of a rope or ladder. It was formerly kept as a garrison. A party of the adherents of James VII. surprised it at the revolution, and it was the last place in the three kingdoms that submitted to the new government; upon which its fortifications were ordered to be neglected. In summer this remarkable rock, which rises to a great height above the water, in form of a cone, is quite covered with sea-fowl, which come hither to breed. The chief of these are the solan geese, (See Bassanus), which arrive in June, and retire in September. At that period these birds are so numerous that they almost darken the air; and the surface of the Bass is so covered with nests, eggs, and young, that it is difficult to walk without treading on them. The ruins of the old castle, which was once the state prison for Scotland, are situated at the north end of the precipice, which overhangs the sea in a tremendous manner. The Bass also contains a small warren for rabbits, and pasture for a few sheep. There is a beautiful spring of water in the centre, high on the rock. The force of the tides has now almost worn a hole through this rock. Long. 2° 15′ W., lat. 56° 3′ N.

Bass, in music, of uncertain etymology; whether from the Greek word βασις, a foundation; or from the Italian adjective basso, low; the lowest of the four parts of music, but the most important, as it is upon that the chords proper to constitute a particular harmony are determined. Hence the maxim among musicians, that when the bass is properly formed, the harmony can scarcely be bad. It is the part of the concert which is the most heard, which consists of the gravest and longest sounds; or which is played on the largest pipes or strings of a common instrument, or an instrument larger than ordinary, for the purpose. Musicians generally hold the bass the principal part of a concert, and the foundation of the composition; though others will have the treble the chief part. The late ingenious Dr. Franklin, in his very curious letter to Lord Kaimes on this subject, declares it to be his opinion that the bass is unnecessary to some tunes, and gives some reasons in support of it, which the curious may see there. Exper. Observ. &c. 4to. fifth edit. p. 489. Rousseau appears to have been of the same opinion. See Dict. de Musique, an. 1768.—Bass cliff, or F cliff, the character is marked thus

Bass, Counter, is a second or double bass, where there are several in the same concert.

Bass Harbour, a harbour in the Eastern seas, formed by several small islands, off the coast of Malacca, forty-five miles W. of Queda.

Bass Island, an island in Lake Erie, four miles N. of Sundusky.

Bass River, a river of East Greenland, which runs into the sea. Long. 50° 10′ W., lat. 64° 30′ N.

Bass-Relief. Whatever figures or representations are cut, stamped, or otherwise wrought, so that not the entire body, but only part of it, is raised above the plane, are said to be done in relief, or relievo; and when that work is low, flat, and but little raised, it is called bass or low relief. When a piece of sculpture, a coin, or a medal, has its figure raised so as to be well distinguished, it is called bold, and we say its relief is strong. Bass-reliefs of the Trajan and Antonine columns have been copied by Bartoli, and explained by Bellori, &c. Those of the arch of Severus by Suaresius. Some have also made maps of prospects of countries in basso-relievo. Phil. Trans. No. 6, p. 99. See Basso Rilievo.

Bass, Thorough, is the harmony made by the bass-viols, or theorbos, continuing to play both while the voices sing and the other instruments perform their parts, and also filling up the intervals when any of the other parts stop. It is played by figures marked over the notes, on the organ, spinet, harpsichord, &c. and frequently simply and without figures on the bass-viol and bassoon.

Bass-viol, a musical instrument of the same form with that of a violin, but much larger. It is struck with a bow, as that is; has the same number of strings; and has eight stops, which are subdivided into semi-stops: its sound is grave, and has a much nobler effect in a concert than that of the violin.

Bass Strait, so called from the name of its discoverer, separates Van Diemen's Land from New Holland, and is not more than fifty leagues wide. It contains a chain of small islands, which run north and south. Van Diemen's land, which was hitherto supposed to be a part of New Holland, is thus ascertained to be a detached island; as, proceeding through this strait, Mr. Bass actually circumnavigated it. This discovery is not only interesting, as it establishes this geographical fact, but may be useful, as it expedites the

passage from the Cape of Good Hope to our settlement of Port Jackson.

BASSA. See BASHAW.

BASSA, or GRAND BASSA, a country on the west coast of Africa, about 400 miles south of Sierra Leone, where the American colonization Society has obtained a grant of land from the king for a settlement. One of their agents describes the Bassas as living in small villages, or clusters of cottages, in each of which there is a head-man, who has a plurality of wives, and is the owner of all the people in his town. The inhabitants of each village cultivate the ground in common, which is chiefly done by the women and boys; the men employ themselves in fishing, hunting and trade, and in directing those under them. The adults wear a piece of narrow cloth about their loins; but the children are not burdened with any kind of clothing. They are very fond of beads and various other ornaments; and are represented as good-natured people, but extremely ignorant and superstitious, depending solely upon their gree-grees and devil worship, to whom they make daily sacrifices, and even dedicate a part of their regular food.

BASSAC, a town of France, in the Angoumois, department of the Charente, arrondissement of Cognac, where was formerly an abbey. The number of inhabitants is about 1000. On the 13th of March, 1569, a battle was fought near this place between the Catholics and Protestants, in which the latter were defeated, and a prince of Condé was killed. It is on the right bank of the Charente, not far from Jarnac, and fifteen miles E. S. E. of Saintes.

BASSAD, or BESD, an Arabian name for the purple fucus of the Greeks, used by the women to paint their cheeks, and by the dyers of cloths. It has been misunderstood by late authors, and interpreted coral; but the error of this is evident, since coral has none of these properties. See MARGIAN.

BASSAN (Giacomo de Pont), or LE BASSAN, a celebrated Venetian painter, born in 1510. His subjects generally were peasants and villagers, cattle, landscapes, and historical designs; the figures were well designed, and the animals and landscapes have an agreeable resemblance of simple nature. His compositions cannot boast of much elegance; but they have abundance of force and truth. His local colors are well observed, his carnations brilliant, and the chiaroscuro and perspective well understood. His touch is free and spirited, and the distances in his landscapes are always true, but sometimes too dark in the nearer parts. His works are spread all over Europe: many of them were purchased by Titian; and there were several in the late French king's cabinet, the royal palace, and the Hotel de Toulouse. They are readily known from the similitude of characters and countenance in the figures and animals, &c., and particularly from a violet or purple tint that predominates in them all. But the genuine pictures of his own hand are not so easily ascertained; because his sons were mostly employed in copying the works of their father, which he sometimes retouched. As he lived to be very old, he finished a great number of pictures; yet from this circumstance his genuine pictures are not commonly met with. But the true pictures of Giacomo always bear a considerable price. He was also a lover of music and gardening, and used to intermingle among his plants figures of serpents, drawn so much to the life that his visitors were apt to mistake them for real ones. Hannibal Caracci himself, when he went to see him, was so far deceived by the figure of a book upon the wall that he went to take it off the supposed shelf. He died in 1529.

BASSAN (Leander and Francis), sons of Giacomo, inherited their father's genius for painting, and distinguished themselves in the art; but unfortunately they also inherited a species of lunacy from their mother, which shortened their lives and their usefulness.

BASSANI (Giovanni Battista), maestro di capella of the cathedral church of Bologna, about the middle of the last century, was a very voluminous composer of music, having published no fewer than thirty-one different works. He is equally celebrated as a composer for the church and for concerts; and being also a celebrated performer on the violin, he taught Corelli. His compositions consist of masses, psalms, motets with instrumental parts, and sonatas for violins: his fifth opera in particular, containing twelve sonatas for two violins and a bass, is much esteemed; it is written in a style wonderfully grave and pathetic. He was one of the first who composed motets for a single voice, with accompaniments of violins; a practice liable to objection, as it assimilates church-music too nearly to that of the chamber. Two of his operas, viz. the eighth and thirteenth, were printed in London, by Pearson, above fifty years ago, with the title of Harmonia Festiva.

BASSANO, a flourishing town of Italy, on the river Brenta, in the Venetian territory. It is scarcely one Italian mile in circuit, but has spacious suburbs, and contains, according to the last French enumeration, 11,500 inhabitants. A stone bridge, 182 feet in length, connects it with the large village of Vicantino. The neighbourhood is highly favorable to the cultivation of the vine and olive, and a good trade is carried on in silk, cloth, and leather. The extensive printing-office of Remontini issues a number of elegant publications. In the kingdom of Italy this town belonged to the department of the Tagliamento: Buonaparte erected it into a duchy, with £9,500 sterling annual revenue, which he conferred in 1809 on Maret, his minister for foreign affairs. It is twelve miles north of Vicenza, and twenty west of Treviso. Long. 11° 43′ E., lat. 45° 46′ N.

BASSANO, or BASSANELLA, a small town in the Papal states, the head of a duchy, belonging to the house of Colonna. It gives name to the lake of Bassano, from which issues the river La Barca, the ancient Cremera. Here was born the celebrated Venetian printer, Aldus Manutius. Three miles west of Orta.

BASSANO (ST.), a small town of Italy, in the duchy of Milan, and district of Lodi.

BASSANUS, in ornithology, a species of Pelecanus, as large as a common goose, with a wedge-shaped tail; body white; bill and primary quill-feathers black; and face blue. Gmelin, Latham, &c.

This is the common gannet, or solan goose, a bird found in great plenty on all the northern coasts of Britain, but rather less common to the southward. The adult birds have the plumage nearly all white; but during the first years it is of a dusky color, and only speckled with white. The bill is bluish-ash color, about six inches in length, and has the nostrils placed in a furrow; the mouth within is black; the throat is bare; and the skin very dilatable, forming a pouch of sufficient size to contain five or six herrings; the legs are black, marked with a stripe of pea-green before; and the claw of the middle toe is pectinated. The males and females are very much alike in plumage. The gannet is particularly abundant in the isle of Ailsa in the firth of Clyde; the rocks adjacent to St. Kilda; the stalks of Souliskerry, near the Orkneys; the Skelig isles off the coasts of Kerry, Ireland; and the Bass island in the firth of Edinburgh. Dr. Hervey gives some account of the latter in these words. 'There is a small island, called by the Scotch Bass island, not more than a mile in circumference; the surface is almost wholly covered during the months of May and June with nests, eggs, and young birds; so that it is scarcely possible to walk without treading on them; and the flocks of birds in flight are so prodigious as to darken the air like clouds; and their noise is such that you cannot without difficulty hear your next neighbour's voice. If you look down upon the sea from the top of the precipice, you will see it on every side covered with infinite numbers of birds of different kinds, swimming and hunting for their prey; if in sailing round the island you survey the hanging cliffs, you see in every cragg or fissure of the broken rocks innumerable birds of various sorts and sizes, more than the stars of heaven when viewed in a serene night; if from afar you see the distant flocks either flying to or from the island, you would imagine them to be a vast swarm of bees.

'The gannet,' observes Dr. Latham, 'inhabits the colder parts of this kingdom, and more especially several of the northern isles, and in particular that of Bass in Scotland, whence the name. It generally first makes its appearance in March, and after making a circuit of the island, departs in October or November. This race seems to be in pursuit of the herrings and pilchards, whose motions it watches; and the fishermen know the coming of these fish by the appearance of the birds. That this is the inducement seems probable, as they are likewise seen, in the month of December, as far south as the coast of Lisbon and Gibraltar, plunging for sardinæ. The gannet is also common on the coasts of Norway and those of Iceland, and now and then met with on the southern coast of Greenland. In America it is found on the coasts of Newfoundland, where it breeds, migrating in winter as far as Carolina: said also to have been met with frequently in the southern ocean; but we are not clear whether the sort meant by them is the common gannet, or the lesser one.'

'The gannets,' Mr. Pennant remarks, 'are birds of passage. The first appearance in those islands being in March, and their continuance till August or September, according as the inhabitants take or leave their first egg; but in general the time of breeding and that of their departure seems to coincide with the arrival of the herring, and the migration of that fish, which is their principal food, out of those seas.' 'I have in the month of August,' he adds in another place, 'observed in Caithness their northern migrations. I have seen them passing the whole day in flocks, from five to fifteen in each. In calm weather they fly high, in storms they fly low and near the shore; but never cross over land, even when a bay with promontories intervenes, but follow at an equal distance the course of the bay, and regularly double every cape. I have seen many of the parties make a sort of halt for the sake of fishing; then, darting headlong into the sea, make the water foam and spring up with the violence of their descent: after which they pursued their route. I enquired whether they ever were observed to return southward in the spring, but was answered in the negative; so that it appears, they annually encircle the whole island.'

They are well known on most of our coasts by different names. In Cornwall and in Ireland they are called gannets, and by the Welsh gan. It comes on the coasts of Cornwall in the latter end of the summer or beginning of autumn, hovering over the shoals of pilchards that come up through the St. George's channel from the north sea. The gannet seldom comes near the land, but is constant to its prey; and when the pilchards retire, which happens about the end of November, they are seen no more.

The nest of the gannet is composed of various materials, such as grass and water plants, intermixed with any thing the birds find floating on the water. Each bird, if undisturbed, would lay only one egg in the year; but if that be taken away they will lay another, and if that be taken away also, they will lay a third, but no more. The young gannets, as well as the eggs, are eaten. Martin assures us, that the inhabitants of St. Kilda consume annually no less than 22,600 young birds of this species, besides an amazing quantity of their eggs; these being their principal support throughout the year: they preserve their eggs and fowls in pyramidal stone buildings, covering them with turf ashes to protect them from moisture. This is a dear-bought food, and earned at the hazard of their lives, either by climbing the most difficult and narrow paths, where to appearance they barely cling, and that too at an amazing height above the raging sea; or else, being lowered down from above, they collect their annual provision, thus hanging midway in the air, and placing their whole dependence on the uncertain footing of one person who holds the rope by which they are suspended at the top of the precipice. The young birds are a favorite dish with the north Britons in general, during the season they are constantly brought from the Bass isle to Edinburgh, and are roasted and served up a little before dinner as a whet: the price they are sold for in the markets is twenty-pence a piece.

The following account of the gannets in the isle of St. Kilda is given by Mr. Macauley:

The rocks are in summer totally covered with the solan geese and other fowls, and appear at a distance like so many mountains covered with snow. The nests of the solan geese, not to mention those of other fowls, are so close, that when one walks between them, the hatching fowls on either side can always take hold of one's clothes; and they will often sit till they are attacked, rather than expose their eggs to the danger of being destroyed by the sea gulls: at the same time an equal number fly about, and furnish food for their mates that are employed in hatching; and there are, besides, large flocks of barren fowls of the different tribes that frequent the rocks of St. Kilda.

'The solan geese, almost equal the tame ones in size. The common amusement of the herring-fishers shows the great strength of this fowl. The fishers fix a herring upon a board, which has a small weight under it to sink it a little below the surface of the sea: the solan goose observing the fish, darts upon it perpendicularly, and with so much force, that he runs his bill irrecoverably through the board, and is taken up directly by the fishers.

'The solan geese repair to St. Kilda in the month of March, and continue there till after the beginning of November. Before the middle of that month they, and all the other sea-fowls that are fond of this coast, retire much about the same time into some other favorite regions; so that not a single fowl belonging to their element is to be seen about St. Kilda from the beginning of winter down to the middle of February. Before the young soland geese fly off, they are larger than their mothers, and the fat on their breast is sometimes three inches deep. Into what quarter of the world these tribes of wild fowl repair, after winter sets in, whether into the northern ocean, the native country and winter-quarters of herrings in general, or into some other region near the sun, or whether they be of the sleeping kind, they who pry into the mysteries of natural history, or have conversed much with writers of voyages, can best explain. I shall only pretend to say that these different nations of the feathered kind are taught to choose the most proper habitations and feeding places, and to shift their quarters seasonably by the unerring hand of God.

'From the account given above of the multitudes of sea-fowls that seek their food on this coast, we may justly conclude that there must be inexhaustible stores of fish there. Let us for a moment confine our attention to the consumption made by a single species of fowls. The solan goose is almost insatiably voracious; he flies with great force and velocity, toils all the day with little intermission, and digests his food in a very short time; he disdains to eat any thing worse than herring or mackerel, unless it be in a very hungry place, which he takes care to avoid or abandon. We shall take it for granted that there are a hundred thousand of that kind around the rocks of St. Kilda; and this calculation is by far too moderate, as no less than twenty thousand of this kind are destroyed every year, including the young ones. We shall suppose, at the same time, that the solan geese sojourn in these seas for about seven months in the year; that each of them destroys five herrings in a day, a subsistence infinitely poor for so greedy a creature, unless it were more than half supported at the expence of other fishes. Here we have 100,000,000 of the finest fish in the world devoured annually by a single species of the St. Kilda sea-fowls,' &c.

It is proper to observe that le grand fou of Brisson and Buffon, and great booby of Catesby, an inhabitant of the sea-shores of Florida, is supposed to be the young or at least a variety of pelecanus bassanus; and that observed by navigators so common on Ascension island, pelecanus piscator, a different species.

BASSATERRE. See Basse-Terre.

BASSEE, La, in geography, a town of France, in the department of the North, the ci-devant French Netherlands, remarkable on account of the many sieges it has sustained. It is seated on a canal which falls into the river Deule; eighteen miles south-west of Lille. Its principal commerce is in cattle, linen, and turf. Population about 2200.

Basse, in ichthyology, the English name of the sea-wolf, the lupus piscis of authors. The Greeks have called this labrax; and some of the later writers, as Paulus Jovius and others, spigola. It is properly a species of pearch, and is distinguished by Artedi by the name of the pearch with thirteen rays in the second fin of the back, and fourteen in the pinna auri. See Lupus, Marinus.

Basse, in writers of the middle age, a collar for cart-horses, made of flags. Hence also the round, matted cushion of flags, or hassock, used for kneeling in churches, is called basse; in Kent a trush.

Basse-cour, in building, a court separated from the principal one, and destined for the stables, coach-houses, and livery servants. In the country it is applied to the yard, or place where the cattle, fowls, &c. are kept.

Basse Enciente, or Basse Enclosure, in fortification, a false trench, made to hide a real one.

BASSEEN, a sea-port of Hindostan, the province of Aurungabad, separated from the island of Salsette by a narrow strait, in long. 72° 54′ E., lat. 19° 18′ N. The district around is in a very improved state of cultivation, although under a Mahratta government. Many of the cultivators are Roman Catholics. The Teak forests, which supply the marine yard at Bombay, lie along the western side of the Ghaut mountains, to the north and north-east of Basseen. In 1780 it was taken from the Mahrattas by the British, but restored in 1782. Distant 27 miles north of Bombay, and 152 south of Surat.

BASSEIN, or Persaim, a city in the south-west part of Pegu, where the British formerly had a factory; but the Burmans now prevent any European vessel from entering this branch of the river Irrawaddy. Long. 95° E., lat. 16° 50 N.

BASSEN, or Bassum, a small town, castle, and lordship of Germany, in the county of Hoya, in Westphalia, with a Lutheran abbey. It belongs to Hesse Cassel; but the abbey stands under the sovereignty of Hanover. Sixteen miles west of Hova.

BASSES, a numerous cluster of islets, called the Thousand isles by Maurelle, off the north-west point of New Guinea. The most south is in long. 139° 27′ E., lat. 1° 40′ S.

BASSET, or Basette, a game at cards, said to have been invented by a noble Venetian, for which he was banished. It was first introduced into France by Signior Giustiniani, ambassador of Venice, in 1674. Severe laws were made against it by Louis XIV., to elude which they disguised basset under the name of pour et contre, that is, 'for and against,' which occasioned new arrets and prohibitions of parliament. The parties concerned in it are a dealer or banker; his assistant, who supervises the losing cards; and the punter, or any one who plays against the banker. The other terms used in this game are: 1. The fasse or face, which is the first card turned up by the tailleur belonging to the pack, by which he gains half the value of the money laid down on every card of that sort by the punters. 2. The couch, or first money which every punter puts on each card; each person that plays having a book of thirteen several cards before him, on which he may lay his money, more or less, at discretion. 3. The paroli, which is, when a punter having won the first stake, and having a mind to pursue his good fortune, crooks the corner of his card, and lets his prize lie, aiming at a sept et le va. 4. The masse; when having won the first stake, the punter is willing to venture more money on the same card. 5. The pay; when the punter having won the first stake, be it a shilling, half-crown, guinea, or whatever he laid down on his card, and not caring to hazard the paroli, leaves off, or goes the pay: in which case, if the card turn up wrong, he loses nothing, having won the couch before; whereas, if it turn right, he by this adventure wins double the money staked. 6. The alpiew; much the same with paroli, and used when a couch is won by turning up or crooking the corner of the winning card. 7. Sept et le va, the first great chance or prize, when the punter, having won the couch, makes a paroli, and goes on to second chance; so that if his winning card turns up again, it comes to sept et le va, which is seven times as much as he laid down on his card. 8. Quinze et le va is the next higher prize, when the punter, having won the former, is resolved to push his fortune, and lay his money a second time on the same card by crooking another corner; in which case, if it comes up, he wins fifteen times the money laid down. 9. Trent et le va is the next higher prize, when the punter, crooking the fourth corner of his winning card, if it turn up wins thirty-three times the money he first staked. 10. Soixant et le va is the highest prize, and entitles the winner to sixty-seven times his first money; which, if it were considerable, stands a chance to break the bank: but the bank stands many chances first of breaking the punter. This cannot be won but by the tailleur's dealing the cards over again. The rules of the game of basset are as follows: 1. The banker holds a pack of fifty-two cards, and having shuffled them, he turns the whole pack at once, so as to discover the last card; after which he lays down all the cards by couples. 2. The punter has his book of thirteen cards in his hand, from the king to the ace; out of these he takes one card, or more, at pleasure, upon which he lays a stake. 3. The punter may, at his choice, either lay down his stake before the pack is turned, or immediately after it is turned, or after any number of couples are down. 4. Supposing the punter to lay down his stake after the pack is turned, and calling 1, 2, 3, 4, 5, &c. the places of those cards which follow the card in view, either immediately after the pack is turned, or after any number of couples are drawn. Then, 5. If the card upon which the punter has laid a stake comes out in any even place, except the first, he wins a stake equal to his own. 6. If the card upon which the punter has laid a stake comes out in any even place, except the second, he loses his stake. 7. If the card of the punter comes out in the first place, he neither wins nor loses, but takes his own stake again. 8. If the card of the punter comes out in the second place, he does not lose his whole stake, but only one-half; and this is the case in which the punter is said to be faced. 9. When the punter chooses to come in after any number of the couples are down, if his card happens to be but once in the pack and is the last of all, there is an exception from the general rule: for though it comes out in an odd place, which should entitle him to win a stake equal to his own, yet he neither wins nor loses from that circumstance, but takes back his own stake. This game has been the object of mathematical calculations. M. de Moivre solves this problem: to estimate at basset the loss of the punter under any circumstance of cards remaining in the stock when he lays his stake, and of any number of times that his card is repeated in the stock. From this solution he has formed a table, showing the several losses of the punter in whatsoever circumstances he may happen to be. From this table it appears, 1. The fewer the cards are in the stock, the greater is the loss of the punter. 2. That the least loss of the punter, under the same circumstances of cards remaining in the stock, is when his card is but twice in it; the next greater when but three times; still greater when four times; and the greatest when but once. The gain of the banker upon all the money adventured at basset is 15*s.* 3*d.* per cent.

Basset (Peter), a gentleman of a good family, was chamberlain, or gentleman of the privy-chamber, to Henry V. a constant attendant on that brave prince, and an eye-witness of his most glorious actions at home and abroad; all which he particularly described in a work entitled, The Acts of King Henry V. which remains in MS. in the college of heralds.

BASSE-TERRE, the chief town of St. Christopher's, in the West Indies, situated at the south-east end of the island, and at the mouth of a river opening into a bay called Basse-Terre road. It consists of a long street, containing 800 houses, is a place of considerable trade, and defended by three batteries. Long. 62° 36′ W., lat. 17° 24′ N

Basse Terre, Fort de la, a castle of the island of Guadaloupe, on the west coast. It is also the name of a part of the island, between a point of which, called Grosse Morne, to that of

Antigua in the Grande Terre, the basin called the Great Cul de Sac is five or six leagues in length, and affords safe riding for ships.

BASSETING, in the coal mines, denotes the rise of the vein of coal towards the surface of the earth, till it comes within two or three feet of the surface itself. This is also called by the workmen cropping; and stands opposed to dipping, which is the descent of the vein to such a depth that it is rarely, if ever followed to the end.

BASSETTO, a bass viol of the smallest size.

BASSEVILLE (Citizen), secretary to the French legation at Rome, one of the many victims to the French revolution, but who fell, not by the hands of the zealots of liberty, but by the dæmons of despotism and priestcraft, in March 1793. Having received orders from the Convention to put up the arms of the republic over the consular house, instead of those of the ci-devant royalty, the popular furor was excited; and, though Basseville himself, being a man of moderate principles, was against the measure, the blind zealots of superstition stabbed him in the belly with a razor, in the house of Moutte the banker, which they afterwards plundered and burnt, calling out 'Long live the pope!—Long live religion!' &c. Basseville died in thirty-six hours; and the convention decreed a pension to his widow, with reversion to his child, whom they also decreed to be educated at the public expense.

BASSI (Laura), a celebrated Italian lady, of the eighteenth century. She received a liberal education, not only in the branches considered as belonging to her sex, but in the languages and sciences; and such was her progress in learning, that in 1732, she got the title of Doctor of Philosophy. In 1745 she read lectures on experimental philosophy, and continued to do so during her life. She married Dr. Verati, and preserved an excellent character, as the practiser of every virtue. She died in 1778.

BASSIA, a genus of the monogynia order, belonging to the dodecandria class of plants, the characters of which are: The CAL. is quadriphyllous; the COR. octofid, with the tube inflated; the STAM. are fifteen; and the drupe is quinquespermous. There is but one species, viz. B. longifolia, native of Malabar.

BASSIGNY, a district of France, belonging, before the revolution, to Upper Champagne, and the duchy of Bar. At present it is included in the department of the Upper Marne, with the exception of some small portions which are in the departments of the Vosges and Maese. There is in it a small town of the same name, but the chief places are Chaumont and Vaucouleurs.

BASSINGTHWATE, or BASSENTHWAITE, WATER, a lake in Cumberland, four miles long, and one broad, having on one side the vale of Bassingthwate and the lofty Skiddaw, and on the other the steep woody mountains of Withop.

BASSO, in music, generally signifies the bass, but sometimes in pieces of music for several voices, the singing bass is more particularly so called. Thus also,

BASSO CONCERTANTE, or RECITANTE, implies the bass of the little chorus, which plays throughout the whole piece.

BASSO CONTINUO, the continual or thorough bass, distinguished with figures over the notes, for the organ, harpsicord, or theorbo. It originally meant the accompaniment to the higher parts of a sonata, &c. in whatever cliff it was written.

BASSO RILIEVO. Italian. In sculpture, a modern term for that kind of sculpture in which the figures do not stand out from the ground in their full proportion. The term belongs exclusively to later times. Pliny (xxxiii. 11.) applies the word *αναγλυπτα* to workmanship of this kind; but it is a term by no means so distinctive as the Italian basso-rilievo. All works in sculpture are classed as bassi rilievi when the subjects represented are not isolated, but adherent to the ground, whether they are of a similar or different material, and applied or fixed to the ground, or form a part of the material in which they are wrought. There are three sorts of relief in sculpture, alto rilievo, mezzo rilievo, and basso rilievo. Strictly taken, alto rilievo is that relief in which the figures are entire, or nearly so, being attached only in a few places, and are relieved from the ground like the metopes of the Parthenon; mezzo rilievo is that in which half the figure stands clear from the ground, and the other appears buried therein; and basso rilievo that in which the figures lose their projecture, and are represented as nearly flat, like the Panathenæic procession of the same temple. Custom, however, has nearly abolished two of these terms; and basso rilievo is often applied to each sort, be the projections what they may.

The true basso rilievo, which has but small projection, requires more skill in the sculptor than that in which the projection is more considerable; because it is extremely difficult to give a natural effect to a figure which is of its proper height and size, but falls short of its real thickness. What is more difficult even than this, in the style of sculpture now under consideration, is picturesque composition in grouping the figures, because the artist cannot, as in painting, employ different backgrounds remote from each other; and as the shadows in sculpture are real, and not imitative, he must calculate his composition, and arrange its form for the light in which it is to be placed.

The ancients used bassi rilievi in decorating architectural designs, and in ornamenting their domestic furniture. All nations, however, in the history of the arts have used them, and they resemble in style that of their other works. The Egyptians ornamented their temples with an innumerable quantity of figures and hieroglyphics, of which the greater part have the outlines only sunk, and the area thus formed only painted, but many of them are of the class bassi relievi. (See Denon's Travels in Egypt, Captain Norden, and Dr. Pococke; also the Egyptian sculptures in the British Museum, those brought to Europe by Belzoni, &c.) Their manner of executing these sculptures is singular: they first channelled an outline in the stone, and sunk it round the figure, so that it did not project beyond the original face; being in fact more a species of engraving than sculpture. The cabinet of the royal library at Paris possesses a very curious Egyptian sculpture thus wrought, and many of

the same description are found in Egypt, principally on the frontispieces of the temples where the Scarabeus extends his reign. The Persians were also partial to the use of bassi rilievi, as in the walls of Tschelminar, the ancient Persepolis. (See PERSEPOLIS.) They are executed in very high relief.

The Etruscans also used bassi rilievi; but Winckelman errs in attributing to this people all those works in which the figures are clothed in draperies, with straight square folds, designed in a stiff formal style like the antique altar of the Cardinal Albani, on which is represented their twelve principal gods. On the contrary, every well informed archaiologist allows these and other similar monuments of art to belong to the very earliest period of the Greeks. Some bassi rilievi of clay, painted in water colors, found near the country of the Volscii, which are preserved in the cabinet of Cardinal Borgia, and published under his patronage, prove, beyond a doubt, that the Etruscans, like the Greeks, often painted their sculptural figures.

The bassi rilievi used by the ancients were often formed of baked clay: sometimes of ivory and various metals, but oftener of marble.

Among the most celebrated Greek bassi rilievi of antiquity are those which Phidias carved in ivory, upon the shield and the base of the statue of Minerva at Athens. Those which ornamented the throne of Jupiter Olympus, executed by Alcamenes; those of Apollo, at Amyclæ, in Laconia; the bassi rilievi of the temple of Hercules, at Thebes, executed by Praxiteles; those of the temple of Delphos, the joint work of Praxias and Androsthenes; the celebrated funeral monument of Mausolus, called the mausoleum, executed by Scopas, Bryaxis, Timotheus, and Leochares; the thirty-six columns of the temple of Diana, at Ephesus, &c.

The sculptures in the metopes and pediments of the parthenon at Athens, which were entire in the time of Spon, who has described them, are in alto rilievo, like statues affixed to a back ground of marble. Their great size and height preserved them from those accidents to which they would have been liable in a lower situation, and to which, on the same account, they gave a less projection. Many of these invaluable relics of the brightest days of Grecian art, were brought to England by Lord Elgin, and are preserved in the British Museum.

As the greater part of the antique bassi rilievi, now remaining, are executed in marble, they form the principal criterion by which we can judge of the excellency of their sculptors. Many of the best preserved were used to ornament their altars, as is seen in those which are in the museum capitolinum. One of these represents the education of Jupiter, and the others the labors of Hercules. They were also used as decorations to the bases of statues, and oftener to their tombs; and even sometimes to the pedestals or stones on the margin of wells, as may be seen on one belonging to the last-named museum, representing the education of Achilles; and a beautiful one of nymphs and fawns, in the British Museum.

The Romans made use of bassi rilievi to commemorate victories and embellish columns, triumphal arches, &c. But the greater number now preserved were attached to sarcophagi. The custom of burning their dead had fallen into disuse, partly from a scarcity of fuel, and partly because they had acquired many of the religious opinions of the eastern nations, from whom they adopted the mode of occasionally interring the bodies of their dead in coffins of marble, and other valuable materials. Their numbers at length became immense, both in the city and in the environs of Rome, if we may judge only from those which are to be found in the cabinets of the curious. The bassi rilievi, with which these sarcophagi are ornamented, are usually wrought with little care, and by sculptors of minor talents; but they preserve to us many of the finest compositions of their greatest artists, which were the admiration of antiquity. In many of the Greek bassi rilievi, the face of the deceased only is finished, and many antiquaries, from this circumstance, have conjectured that it was a sort of manufacture in Greece, to make sarcophagi for the Romans, and that they were to be finished after they were sold. The bad style of these sculptures is no reason for supposing that these marbles were not carved in Greece, because in the time of the emperors, the best Grecian artists were removed to Rome, and those of meaner talents remained at home. From the great quantity of marble that Attica, and indeed all Greece, possessed, it is natural to suppose that those sculptors who remained behind in their country would execute bassi rilievi for sarcophagi, when so ready a sale was found for them at Rome. Many archaiologists have supposed that the greater part of the compositions which are found on these sarcophagi, were copied from the great masters, of which the originals (as the paintings of Panænus and Polignotus in the Poekile, &c.) perished, when the cities of Greece were pillaged and ransacked.

The study of the ancient bassi rilievi is of great service in the history of the arts; as from them may be collected many important facts of the mythology, customs, costume, &c. of the ancients. The finest collections of bassi rilievi now existing, are those of the British Museum, formerly the Townly collection; the Elgin marbles in the same museum; the collections of Mr. Thomas Hope, and Mr. Soane, the professor of architecture in the Royal Academy of London; and several fine casts in the Royal Academy. In Paris they had some fine antique bassi rilievi in the Royal Museum; in the museum of the Augustins; and many private collections. The application of bassi rilievi among the moderns is the same as among the ancients; being used to decorate public buildings, palaces, churches, triumphal arches, theatres, concert rooms, and private houses; furniture, tombs, and other subjects of ornamental architecture. The most celebrated specimens of bassi rilievi (properly so called) of modern art in England, are those of the tympanum of the pediment of the East India house, by Bacon; the monument of Captain Millar in a pannel of St. Paul's cathedral, by Flaxman. Several others on the public monuments, erected in that cathedral, and in Westminster abbey, by Bacon, Banks, Bacon, jun. Rossi, Chantrey, Kendrick,

Hopper, and Westmacott. And on the continent, most of the sculptures are thus decorated, and embrace the names of the most celebrated artists. The French critics particularly admire the bassi rilievi on the Porte St. Denys, begun by Girardon, and finished by Michel Anguiere, and those on the Fountain of the Innocents, called the Nymph's Fountain, by the celebrated Jean Goujon.

Basso Ripieno, the bass of the ground chorus, or that which plays only in particular places.

Basso Violino, the bass for the bass viol.

BASSOON, *bas son*, Fr. low sound; an instrument which forms the natural base to the hautbois. It is played like that instrument, with a reed, and forms a continuation of its scale downwards. The reed is fixed to a crooked mouth-piece issuing from the side of the bassoon. Three keys communicate to the ventages which otherwise are too remote for fingering. The Italian name fagotto is derived from its appearance; it consists of four tubes bound together so as somewhat to resemble a fagot. Its compass is three octaves, from double AA in the base, to *a* in the second space of the treble.

BASSORA, Balsora, Bossora, or Basra, a city between Arabia and Persia, situated in the extremity of the deserts of Irak, a little west of the Tigris, where it is navigable for vessels of 500 tons, and not far from its junction with the Euphrates. It was built by the khaliff Omar, in the fifth year of the Hegira, for the sake of carrying on more commodiously an extensive commerce between the Syrians, Arabians, Persians, and India. It is at present a famous emporium of Eastern commerce, and stands upon a thick stony soil, as the name imports. That mouth of the Tigris which empties itself into the Persian Gulf after passing the town, is called from it, the Bay of Bassora. The circumjacent country is regarded by the Arabs as one of the most delightful spots in Asia, and is certainly one of the most beautiful tracts in the world; however, the hot winds that frequently blow here are very troublesome to travellers, and sometimes overwhelm them with sand. The city is inhabited by Nestorians, Jews, Mahommedans, and Chaldean Christians, or Christians of St. John, which last are pretty numerous. The walls are about seven miles in circuit, and twenty-five feet thick. The city is entered by five gates; but much of this space is occupied by plantations and gardens, interspersed with canals, which are cleansed by the tide flowing into them twice every day, to the height of nine or ten feet. The city is indifferently built; the houses very mean, and constructed chiefly of clay; the streets are irregular, and notwithstanding the advantage of the canals, are kept in a filthy state. Even the bazaars, though containing the richest products of the East, are but miserable edifices. The English factory is the best building in the city. The abbe Raynal describes its trade as consisting of rice, sugar, plain striped and flowered muslins from Bengal, spices from Ceylon and the Molucca islands, coarse white and blue cottons, from Coromandel, cardamum, pepper, sanderswood, from Malabar, gold and silver stuffs, turbans, shawls, indigo, from Surat, pearls from Baharin, and coffee from Mocha, iron, lead, and woollen cloth, from Europe. Some of these commodities are shipped on board small Arabian vessels; but the greater part is brought by European vessels. Yet all European commodities are dear here; a decided preference is given to articles of English manufacture, especially broad cloth and watches. Many of the products of other countries are re-exported, and an extensive traffic is carried on in horses, which, being very strong and beautiful, are exported by the English. Its population was estimated by Mr. Parsons, who was here in 1775, at 200,000; but it is now thought not to exceed 60,000; but it is still the second city of the pachalic of Bagdad. It fell into the hands of the Turks, (who took it from the Persians) in 1688; was re-taken by Persia in 1777, but resigned to the Turkish army the following year. The Arabs expelled the Turks in 1787, but the latter, under Soliman Pacha of Bagdad, regained it shortly after, and have held it ever since. It is distant from Ispahan 210 miles south, 903 from Alexandretta, and 1815 south-east from Constantinople. Long. 44° 46′ E., lat. 30° 32′ N.

BASSOVIA, in botany, a genus of plants of the class pentandria, and order monogynia. Its generic characters are, cal. perianth one-leaved: cor. one-petalled: stam. filaments five; anthers ovate: pist. germ ovate; style short; stigma thickish: per. berry ovate; seeds very many.—The only species is the B. sylvatica, a perennial, native of Guiana.

BASS Viol. See Bass.

BASSUM, a district in the province of Nandere, in the Nizam's dominions, Hindostan. It has an uneven hilly surface, intersected by several small streams, which flows into the Godavery; and it lies between the twenty-first and twenty-second degrees of north latitude. The chief town is Bassan, which is situated six miles from the Gunga. Very little is known respecting this part of Nandere.

BAST, lime tree bark made into ropes or mats.

BASTAGA, from *βαστάζειν*, portare, to carry, the office of carriage or conveyance.

BASTAGARII, in ecclesiastical antiquity, those who carry the images of saints at processions.

BA'STARD, *v. n.* & *adj.* } *Bastardd*, Welsh.
Ba'stardize, } *bastarde*, Fr. of low
Ba'stardly, } birth, from base,
Ba'stardy. } and ord, A. S., the

one signifies mean, disgraceful; and the other source and origin; thus *bastard* means base-born. It is also applied to any thing not proceeding from a legitimate source; to whatever is spurious or mixed. In the earlier writers it is not uncommon to meet with *bast* without the termination *ard*.

When he was aryued, he sent to Harald,
And said that a *bastard* no kyngdom suld hald.
R. Brunne.

And so shee (queen Anne) putting in oblivion the *bastardyng* of her daughter, deliuered into king Richard's hands her five daughters, as lambes were again committed to the custodie of the rauenous woolfe. *Grafton. Richard III*

And ouer this he (Sir H. Bolyngbrooke) hadde of *bast*, whiche after were made legyttymat, by dame Katheryne Swynforde iii sonnys.

Fabyan. Ann. 1386. R. 2.

When thou shalt find the catalogue enroll'd
Of thy misdeeds, there shall be writ in text,
Thy *bastarding* the issues of a prince.

Ford's Love's Sacrifice.

Peace is a very apoplexy, lethargy, insensible, a getter of more *bastard* children than war's a destroyer of men. *Shakspeare.*

I should have been what I am, had the maidenliest star in the firmament twinkled on my *bastardizing*. *Id.*

Once she slandered me with *bastardy*;
But whether I be true begot or no,
That still I lay upon my mother's head. *Id.*

Words
But rooted in your tongue; *bastards* and syllables
Of no allowance to your bosom's truth. *Id.*

Score a pint of *bastard*.—
Then your brown *bastard* is your only drink. *Id.*

We are *bastards* all;
And that most venerable man, which I
Did call my father, was I know not where
When I was stampt; some coiner with his tools
Made me a counterfeit: yet my mother seem'd
The Dian of that time: so doth my wife
The nonpareil of this. *Donne.*

Good seed degenerates, and oft obeys
The soil's disease, and into cockle strays;
Let the mind's thoughts but be transplanted so
Into the body, and *bastardly* they grow. *Id.*

She lived to see her brother beheaded, and her two sons deposed from the crown, *bastarded* in their blood, and cruelly murdered. *Bacon.*

He
That kills himself t' avoid misery, fears it,
And at the best shows but a *bastard* valour.

Massinger.

Of all passions, as I have already proved, love is most violent, and of those bitter potions which this love-melancholy affords, this *bastard* jealousie is the greatest, as appears by those prodigious symptoms which it hath, and that it produceth.

Burton's Anatomy of Melancholy.

In respect of the evil consequents, the wife's adultery is worse, as bringing *bastardy* into a family.

Taylor.

Him to the Lydian king Lycimnia bare,
And sent her boasted *bastard* to the war.

Dryden.

Men who, under the disguise of publick good, pursue their own designs of power, and such *bastard* honours as attend them. *Temple.*

Not more of simony beneath black gowns,
Not more of *bastardy* in heirs to crowns. *Pope.*

A *bastard*, by our English laws, is one that is not only begotten, but born, out of lawful matrimony.

Blackstone's Commentaries.

And these are men, forsooth!
Heroes and chiefs, the flower of Adam's *bastards*.

Byron.

BASTARDS; in the English law. The celebrated Blackstone observes in his Commentaries on the difference between our common and the civil and canon law. The civil and canon laws do not allow the child to remain a bastard, if the parents afterwards intermarry: and herein they differ most materially from our law; which, though not so strict as to require that the child should be begotten, yet makes it an indispensible condition that it should be born after lawful wedlock. And the reason of our law, he continues, is surely much superior to that of the Roman, if we consider the principal end and design of establishing the contract of marriage, taken in a civil light, abstractedly from any religious view; which has nothing to do with the legitimacy or illegitimacy of the children. The main end and design of marriage, being to ascertain and fix upon some certain person, to whom the care, the protection, the maintenance, and the education of the children, should belong: 1. Because of the very great uncertainty there will generally be, in the proof that the issue was really begotten by the same man; whereas, by confining the proof to the birth, and not to the begetting, our law has rendered it perfectly certain what child is legitimate, and who is to take care of the child. 2. Because by the Roman law a child may be continued a bastard, or made legitimate at the option of the father or mother, by a marriage ex post facto; thereby opening a door to many frauds and partialities, which by our law are prevented. 3. Because by those laws a man may remain a bastard till forty years of age, and then become legitimate by the subsequent marriage of his parents; whereby the main end of marriage, the protection of infants, is totally frustrated. 4. Because this rule of the Roman law admits of no limitation as to the time, or number, of bastards to be so legitimated; but a dozen of them may, twenty years after their birth, by the subsequent marriage of their parents, be admitted to all the privileges of legitimate children. This is plainly a great discouragement to the matrimonial state; to which one main inducement is usually not only the desire of having children, but also the desire of procreating lawful heirs. Whereas our constitution guards against this indecency, and at the same time gives sufficient allowance to the frailties of human nature.

By the law of Scotland, following the canon law, bastards may be legitimated, or made lawful, 1. By the subsequent intermarriage of the mother of the child with the father; and this legitimation entitles the child to all the rights of lawful children. The subsequent marriage, which produces legitimation, is considered by the law to have been entered into when the child legitimated was begotten; and hence, if he be a male, he excludes, by his right of primogeniture, the sons procreated after the marriage, from the succession of the father's heritage, though these sons were lawful children from the birth. Hence, also, those children only can be thus legitimated, who are begotten of a woman whom the father might at that period have lawfully married. 2. Bastards are legitimated by letters of legitimation from the sovereign

A bastard, as such, is excluded by the Scottish law. 1. From his father's succession; because law knows no father who is not marked out by marriage. 2. From all heritable succession, whether by the father or mother; because he cannot be pronounced lawful heir by the inquest, in terms of the brief. And, 3. From the movable succession of his mother; for though the mother be known, the bastard is not her lawful child, and legitimacy is implied in all succession conferred by law. Yet a bastard, though he cannot

succeed jure sanguinis, may succeed by destination, where he is specially called to the succession by an entail or testament.

Every attempt to introduce the civil law, in this respect, into England, by declaring children legitimated by a subsequent marriage, has been steadily rejected. It was upon an occasion of this kind, that the barons of England, assembled in the parliament of Merton, A.D. 1272, made that famous answer, 'Nolumus leges Angliæ mutare.' 20 Hen. III. cap. 9.

From what has been said it appears, that all children born before matrimony are bastards by our law: and so it is of all children born so long after the death of the husband, that, by the usual course of gestation, they could not be begotten by him. But this being a matter of some uncertainty, the law is not exact as to a few days. But if a man dies, and his widow soon after marries again, and a child is born within such a time as that by the course of nature it might have been the child of either husband: in this case, he is said to be more than ordinarily legitimate; for he may, when he arrives at the years of discretion, choose which of the fathers he pleases. To prevent this, among other inconveniences, the civil law ordained that no widow should marry infra annum luctus; a rule which obtained so early as the reign of Augustus, if not of Romulus: and the same constitution was probably handed down to our early ancestors from the Romans, during their stay in this island: for we find it established under the Saxon and Danish governments.

As bastards may be born before the coverture of marriage-state is begun, or after it is determined, so also children born during wedlock may in some circumstances be bastards. As if the husband be out of the kingdom of England, or as the law loosely phrases it, extra quatuor maria, for above nine months, so that no access to his wife can be presumed, her issue during that period shall be bastards. But generally during coverture, access of the husband shall be presumed, unless the contrary shall be shown; which is such a negative as can only be proved by showing him, to be elsewhere; for the general rule is præsumitur pro legitimatione. But modern decisions have considerably narrowed this rule. It is now held that the husband's being within the four seas is not conclusive evidence of the legitimacy of the child, and it is left to a jury to determine whether the husband had access or not. 3 P. W. 275, 276. 2 Str. 925. And evidence may be given, that the husband was from natural or incidental causes impotent. 2 Stra. 940. 1 Roll. Abr. 358. 1 Salk. 123. But in this latter case an impossibility must be proved, and not a bare improbability. In a divorce, a mensa et thoro if the wife breeds children they are bastards; for the law will presume the husband and wife conformable to the sentence of separation, unless access be proved; but in a voluntary separation by agreement, the law will suppose access, unless the negative be shown. So also if there be an apparent impossibility of procreation on the part of the husband, as if he be only eight years old, or the like, there the issue of the wife shall be bastards. Likewise, in case of divorce in the spiritual court a vinculo matrimonii, all the issue born during the coverture are bastards; because such divorce is always upon some cause that rendered the marriage unlawful and null from the beginning.

As to the rights and incapacities which appertain to a bastard: the former are very few, being only such as he can acquire; for he can inherit nothing, being looked upon as the son of nobody, and sometimes called filiusnullius, sometimes filius populi. Yet he may gain a surname by reputation, though he has none by inheritance. All other children have their primary settlement in their father's parish: but a bastard in the parish where born, for he hath no father. However, in case of fraud, as if a woman be either sent by order of justices, or comes to beg as a vagrant, to a parish which she does not belong to, the bastard shall, in the first case, be settled in the parish from whence she was illegally removed; or in the latter case, in the mother's own parish, if the mother be apprehended for her vagrancy. Bastards also born in any licensed hospital for pregnant women, are settled in the parishes in which the mothers belong. The incapacity of a bastard consists principally in this, that he cannot be heir to any one; for being nullius filius, he is therefore of kin to nobody, and has no ancestors from whom any inheritable blood can be derived. Therefore, if there be no other claimant upon an inheritance than such illegitimate child, it shall escheat to the lord. And as bastards cannot be heirs themselves, so neither can they have any heirs but those of their own bodies. For as all collateral kindred consists in being derived from the same common ancestor, and as a bastard has no legal ancestors, he can have no collateral kindred; and consequently can have no legal heirs, but such as claim by a lineal descent from himself. And therefore, if a bastard purchases land, and dies seised thereof without issue, and intestate, the land shall escheat to the lord of the see. A bastard was also, in strictness, incapable of holy orders; and though that were dispensed with, yet he was utterly disqualified from holding any dignity in the church; but this doctrine seems now obsolete; and in all other respects there is no distinction between a bastard and another man. And really any other distinction but that of not inheriting, which civil policy renders necessary, would, with regard to the innocent offspring of his parent's crimes, be odious, unjust, and cruel, to the last degree; and yet the civil law, so boasted of for its equitable decisions, made bastards in some cases incapable even of a gift from their parents. A bastard may, lastly, be made legitimate and capable of inheriting by the transcendant power of an act of parliament, and not otherwise: as was done in the case of John of Gaunt's bastard children, by a statute of Richard II.

The principal duty of parents to bastard children, by the English law, is that of maintenance. For though bastards are not looked upon as children to any civil purposes; yet the ties of nature, of which maintenance is one, are not so easily dissolved; and they hold indeed as to many other intentions; as particularly that a man shall not marry his bastard sister or daughter, &c. The

method in which the English law provides maintenance for them is as follows: When a woman is delivered, or declares herself with child, of a bastard, and will by oath before a justice of the peace charge any person with having got her with child, the justice shall cause such person to be apprehended, and commit him till he gives security, either to maintain the child, or appear at the next quarter-sessions to dispute and try the fact. But if the woman dies, or is married, before delivery, or miscarries, or proves not to have been with child, the person shall be discharged; otherwise the sessions, or two justices out of the sessions, upon original application to them, may take order for the keeping of the bastard, by the charging of the mother or the reputed father with the payment of money or other sustentation for that purpose. And if such putative father, or lewd mother, run away from the parish, the overseers by direction of two justices may seize their rent, goods and chattels, in order to bring up the said bastard child. Yet such is the humanity of our laws, that no woman can be compulsively questioned concerning the father of her child till one month after her delivery; which indulgence is, however, very frequently a hardship upon parishes, by giving the parents opportunity to escape.

By the stat. 18 Eliz. c. 3, two justices may take order for the punishment of the mother and reputed father; but what that punishment shall be, is not therein ascertained: though the contemporary exposition was, that a corporeal punishment was intended. By stat. 7 Jac. I. c. 4. a specific punishment, viz. commitment to the house of correction, is inflicted on the woman only. But in both cases, it seems that the penalty can only be inflicted if the bastard becomes chargeable to the parish; for otherwise the very maintenance of the child is considered as a degree of punishment. By the last mentioned statute the justice may commit the mother to the house of correction, there to be punished and set on work for one year; and in case of a second offence, till she find surety never to offend again. It was enacted by statute 21 Jac. I. c. 27. that if any woman be delivered of a child, which if born alive, should by law be a bastard, and endeavours privately to conceal its death, by burying the child or the like; the mother so offending shall suffer death, as in the case of murder, unless she can prove by one witness at least that the child was actually born dead. This law is to be met with also in the criminal codes of many other nations of Europe; as the Danes, the Swedes, &c. but it has been repealed by 43 Geo. III. c. 58. called Lord Ellenborough's act, Women can only be convicted of murder in this case on proof of the child being actually born alive: but in all cases when a child would have been a bastard, are punishable for concealment of birth, whether the child be born alive or otherwise, by imprisonment for two years.

Bastards, in history, a troop of banditti who rose in Guienne about the beginning of the fourteenth century, and joining with some English parties, ravaged the country, and set fire to the city of Saintes. Mezeray supposes them to have consisted of the natural sons of the nobility of Guienne, who being excluded the right of inheriting from their fathers, put themselves at the head of robbers and plunderers to maintain themselves.

Bastards, in the sea language, large sails of a galley, which will make way with a slack wind.

Bastard Cedar Tree, called guazuma in the West Indies.

Bastard Flower Pence. See Adenanthera. The flowers of this plant bruised and steeped in breast milk are a gentle anodyne, for which purpose they are often given in the West Indies to quiet very young children. The leaves are used in Barbadoes and the Leeward islands. In Jamaica the plant is called Sena.

Bastard Hemp. See Datisca

Bastard Rocket. See Reseda.

Bastard Scarlet is a name given to red dyed with bale-madder, as coming nearest the bow-dye, or new scarlet.

Bastard Star of Bethlehem. See Albuca.

BASTARDY, according to Eustathius, was held among the Greeks as honorable as legitimacy, down even to the time of the Trojan war; but the course of antiquity seems against him. The ancient Greeks indeed, appear to have been proud of their reputed descent from the gods, but Potter and others show that there never was a time when bastardy was not a disgrace. In the time of our William the Conqueror, however, it seems not to have implied any reproach, that monarch himself not scrupling to assume the appellation of bastard. His epistle to Alan, count of Bretagne begins, Ego Willielmus, cognomento bastardus.

Bastardy, in relation to its trial in law, is distinguished into general and special.

Bastardy General, is a certificate from the bishop of the diocese, to the king's justices, after inquiry made, whether the party is a bastard or not, upon some question of inheritance.

Bastardy Special, is a suit commenced in the king's courts, against a person that calls another a bastard.

Bastardy, Arms of, should be crossed with a bar, fillet, or traverse, from the left to the right. They were not formerly allowed to carry the arms of their father, and therefore they invented arms for themselves; and this is still done by the natural sons of a king.

BASTARNÆ, or Basternæ, a people of German original, manners, and language, who extended themselves a great way to the east of the Vistula, the east boundary of Germany among the Sarmatæ, as far as the mouth of the Ister and the Euxine, and were divided into several nations.

BASTARNICÆ Alps, in ancient geography, mountains extending between Poland, Hungary, and Transylvania, called also the Carpets, and now the Carpathian mountains.

BASTAVOE, a bay on the east side of Yell, one of the Shetland islands. Long. 1° 16′ W., lat. 60° 59′ N.

BASTE′, Bastina′de, *v.* & *n.* Bastina′do, *v.* & *n.* } Participle pass. *basted*, or *basten*. Fr. *bastonner*. *Bazata*, in the Armorick dialect, signifies to strike with a stick; from which perhaps *baston* a stick, and all its derivatives, or collaterals, may be deduced; to strike,

beat, bang, bethwack with a cudgel; so *Cotgrave*. Applied to noisy abuse with the tongue.

What cannoneer begot this lusty blood?
He speaks plain cannon, fire, and smoke and bounce;
He gives the *bastinado* with his tongue;
Our ears are cudgell'd; not a word of his
But buffets better than a fist of France.
Zounds! I was never so bethump'd with words
Since I first call'd my brother's father dad.
Shakspeare.

But this courtesy was worse than a *bastinado* to Zelmane; so with rageful eyes she bade him defend himself. *Sidney.*

I am not apt upon a wound,
Or trivial *basting*, to despond;
Yet, I'd be loth, my days to curtail.
Hudibras.

The beaten soldier proves most manful,
That like his sword endures the anvil,
And justly's held more formidable,
The more his valour's malleable.
But he that fears a *bastinado*,
Will run away from his own shadow. *Id.*

Quoth she, I grant it is in vain
For one that's *basted* to feel pain;
Because the pangs his bones endure
Contribute nothing to the cure. *Id.*

Bastings heavy, dry, obtuse,
Only dulness can produce;
While a little gentle jerking
Sets the spirits all a-working. *Swift.*

Nick seized the longer end of the cudgel, and with it began to *bastinado* old Lewis, who had slunk into a corner, waiting the event of a squabble. *Arbuthnot.*

In Turkey, says Montesquieu, where little regard is shown to the lives and fortunes of the subject, all causes are quickly decided. The bashaw, on a summary hearing, orders which party he pleases to be *bastinadoed*, and then sends them about their business. *Blackstone's Commentaries.*

BASTE, *v.* To baste meat; to drop butter, or any thing else upon it as it turns upon the spit. This was formerlyrwith a stick covered with fat, and it is therefore probable, that the term to baste, to strike with a stick, came at length to be thus employed.

Sir, I think the meat wants what I have, a *basting*. *Shakspeare.*

The fat of roasted mutton falling on the birds, will serve to *baste* them, and so save time and butter. *Swift.*

BASTE', *v. Besten.* To sew or stitch together slightly. Fr. *baster*, to stitch.

And on her legs the painted buskins wore,
Basted with bands of gold on every side;
And mailes betweene; and laced close afore.
Spenser. Faerie Queene.

Shall the proud Lord
That *bastes* his arrogance with his own seam,
And never suffers matter of the world
Enter his thoughts; save such as do revolve
And ruminate himself, shall he be worshipt;
Of that we hold an idol more than he.
Shakspeare. Troilus and Cressida.

BASTERNA, a kind of vehicle, or chariot, used by the ancient Roman ladies. Papias thinks, that basterna was first written for vesterna, but the word seems better derived from the Greek βαςαζω, porto, I carry. Salmasius observes, that the basterna succeeded the lectica, or litter; from which it differed very little, except that the litter was borne on the shoulders of slaves, and the basterna drawn by beasts. The inside they called the cavea, or cage: it had soft cushions o beds, and glasses on each side like our chariots Basternæ passed from Italy into Gaul, and thence into other countries; and to this we owe our chariots, which, though we call them currus, yet they have no conformity to the ancient curres, but are in effect basternæ improved. The basterna appears also to have been used in war, for carrying baggage.

BASTI, in ancient geography, a town of the province of Bætica in Spain, situated to the west of the Campus Spartarius, now called Baza in Granada.

BASTIA, a sea-port town of Albania, in Turkey in Europe, over against the island of Corfu.

BASTIA, a town of the island of Corsica, on the north-east coast, seated on a hill, in the form of an amphitheatre. It is ill built, and has narrow streets, but is defended by a citadel, and has a safe but not very commodious harbour. The inhabitants carry on a considerable trade in wine, skins, pulse, oil, and figs, and the stilettos made here are much valued by the Italians. In 1745, it was bombarded and taken by the English, but restored to the Genoese the following year. The Austrians and Piedmontese besieged it unsuccessfully in 1748. It was annexed to France in 1768, and with the exception of a short period after its capture by the English in 1794, has remained ever since in the hands of that power. It contained a population of 11 or 12,000 souls, and before the French revolution it was the capital of the island, the seat of the governor, and of the principal offices of state, and courts of justice It was also the see of the bishop of Marian and Acci. On the new modelling of the French territory in 1791, it was created the capital of the department of the Golo, and subsequently the headquarters of the twenty-third military division. It is now the chief town of an arrondissement in the department of Corsica, the residence of a subprefect, and the seat of a civil and a commercial tribunal. Thirty-three miles E.N.E. of Calvi, and fifty-eight north-east of Ajaccio. Long. 9° 26′ 30″ E., lat. 42° 41′ 36″ N.

BASTIDE DE CLERENCE LA, a town of Lower Navarre, France, the head of a canton in the department of the Lower Pyrenees, arrondissement of Bayonne. It is about six miles E.S.E. of Bayonne, and has 2000 inhabitants.

BASTIDE, LA, a town of France, in Quercy, the head of a canton in the department of the Lot, arrondissement of Gourdon, with 1200 inhabitants, ten miles south-east of Gourdon.

BASTIDE DE SERON, LA, a town of France, in the county of Foix, department of the Arriege, arrondissement of Pamiers, with 1760 inhabitants, nine miles W.N.W. of Foix, and twelve north-west of Tarascon.

BA'STILLE, or BASTILE, BA'STILLIONS. } *Bastille*, Fr., *bastide*, Sp. from French *bastir*, to build, probably from the Greek and Latin *basis*, q. d. *basitare*, i. e. to raise upon a basis or foundation; applied to military fortresses, and to places of special defence, and of confinement.

These lordes caused *bastiles* to be made round about the cytie, with which they troubled their enemies and assaulted the walles. *Hall. King Henry VI.*

The same season there was a capytayne at Calais, Sir Johan Delnarnes, who receyued the bysshoppe and his company with grete ioye; and so they landed lytell and lytell, and all their horses and baggage, and so lodged in Calays, and thereabout in *bastylles* that they made dayly. *Froissart. Cronycle*, v. i. c. 329.

Our soldiers rose at the call of their captains, and removed their munitions farr from the wall, providing to fight more close and short along the high *bastiles*, or countermures, which now, that they were finished, overtopped the walls. *Holland. Ammianus.*

Thus fortune fares her children to empound,
Which on her wheel their *bastiles* bravely beeld.
Mirror for Magistrates.

Near which there stands
A *bastile* built to imprison hands. *Hudibras.*

BASTILE, anciently used as a common name for a prison, under the feudal system in our own country, was a name particularly applied to several state prisons in France: but that which was termed the bastile, by way of distinction, was situated near the gates of Paris, on the road to St. Anthony. The building was originally commenced by order of Charles V., and finished in 1383 under the reign of his successor. The original projector was Hugh d' Aubriot, mayor of Paris, who laid the first stone of the foundation on the 22d of April, 1370. Descended from an obscure parentage, this person had been raised by his merit into the favor of his sovereign, and so unqualified was the confidence reposed in him, that the charge of the capital was committed exclusively to his care.

The bastile, as planned by d' Aubriot, consisted only of two round towers, one on each side of the road leading into Paris, from the suburbs of St. Anthony, and united by means of a strong high wall, in the centre of which was the gate of the town. Several additional towers were afterwards erected, and in the succeeding reign two complete courts were formed by means of intervening walls, which composed the body of the edifice. The road itself turned off to the right of the castle, and left the whole building enclosed by a deep ditch, and secured by a counterscarp of nearly thirty-six feet from the bottom. The usual entry into the bastile was from St. Anthony street. Above the first gate was an armoury, and on the right side of the entrance a guard room. The first enclosure, from which a gate led to the arsenal, contained barracks for the garrison, coach houses and stables for the governor and officers, shops for the sutlers, &c. A draw-bridge led from the court into the second enclosure, on entering which, was a guard-room to the left, and the governor's house to the right; and at the end a terrace, on which stood a pavilion, with beautiful walks, shaded with rows of trees. Opposite the governor's house was the entrance into the castle, and between the two were kitchens and other conveniences, erected on a blind bridge thrown across the ditch. From the second court was a draw-bridge, which led into the castle, and within the gate was another guard-room. The first court was 102 feet long, and seventy-two broad. It had six towers, and was terminated by a modern building, on the ground-floor of which was the council chamber and library, and over it the apartments of the Lieutenant du Roi, the surgeon, major, and other officers, together with some rooms appropriated for prisoners of distinction. The second court was seventy-two feet long, and forty-two broad, containg two towers, and lodgings for persons belonging to the castle.

The prisoners were chiefly confined in the towers of the bastile, the entrances to which were secured by double doors of oak, and conducted to a winding stair-case, lighted by narrow grated windows, which led to the rooms above, and the dungeon below. The dungeons had no fire place, and instead of windows a small crevice towards the ditch, that served the twofold purpose of letting in air and light. They were arched, paved, and lined with stone, and were said to be places for the temporary punishment of those unhappy persons who might attempt to make their escape. In these dungeons the unfortunate princes of Armagnac, sons of James, who was beheaded, were confined by Louis XI., the oldest of whom lost his senses in prison, and the youngest, obtaining his liberty on the death of the tyrant, related a tale of suffering which, if it were not corroborated by the most unqualified evidences, would almost exceed belief. Above each of these dungeons were four stories, containing each a single room, some of them having a small dark closet adjoining them, indented in the thickness of the wall. The rooms had each one window, glazed within, and doubly grated, one near the centre of the wall, and again at its exterior surface. Each room had a fire place and stove, the vents of the chimneys being secured by strong iron grates. The double doors were secured by several locks and bars, and many of the rooms had double ceilings; the first was composed of lath and plaster, and the second of oak, supporting the floor of the room immediately above. The walls and ceilings of these apartments were all plastered and white-washed, and the floors laid with tile or stone; they were perfectly dry, owing to the extreme thickness of the building, being nearly seven English feet in diameter at the top, and gradually increasing downwards to the foundation. The three first stories were irregular polygons of about eighteen feet in diameter, and as many in height; but the fourth, or top room, called calotte, was neither so large nor so high as the others, and was arched to support the stone roof or platform with which it was overlaid.

Such was the place of horror, in which hundreds were confined at the caprice of an arbitrary monarch, or minister; and so rigidly were the wretched victims concealed, that many have been shut up for years, cut off from all communication with mankind, except the turnkeys and keepers of the prison, and neither friends nor relations have known what was become of the persons so mysteriously lost.

The officers who had the charge of the bastile were a governor, lieutenant du roi, a mayor, two adjutants, a surgeon and his assistant, a chaplain, and four turnkeys: these, with a company of invalids and officers, lodged in the castle; besides whom, a physician, two priests, a keeper of records, a clerk, a superintendent of buildings, and an engineer, who lodged in the town, his services being only occasionally required.

The king allowed the governor a daily sum for the maintenance of each prisoner, according to his rank in Society; namely,

	Livres.
For a prince of the blood . . .	50 per day.
For a marshal of France . . .	36
For a lieutenant-general . . .	24
For a person of quality or a member of parliament	15
For an ordinary judge, a priest, or persons in the finances . . .	10
For a respectable citizen . . .	5

which, together with an additional salary for firing, candles, washing, &c., more than indemnified him for the expenses of the prison.

The mode of arresting prisoners was by lettres de cachet, which were sometimes signed by the king himself, and always countersigned by the minister of Paris, or one of the secretaries of state. We subjoin the following as a copy of one of these fatal instruments.

'Mon Cousin,

'Etant peu satisfait de votre conduite, je vous fais cette lettre, pour vous dire, que mon intention est qu' aussitôt qu' elle vous aura été remise, vous ayez à vous rendre en mon château de la Bastile, poury rester jusqu' à nouvel ordre de moi. Sur ce je prie Dieu qu'il vous ait, mon Cousin, en sa sainte garde. Ecrit à Versailles, 25 Juin, 1748.

'Signé, Louis,

'Voyer d' Argenson.'

The above was inscribed,

'A mon Cousin, le Prince de Monaco, Brigadier en mon Infanterie.

Every prisoner, on coming to the Bastile, had an inventory made of every thing about him. His trunks, clothes, linen, and pockets, were searched, to discover whether there were any papers in them relative to the matter for which he was apprehended. It was not usual to search persons of a certain rank; but they were asked for their knives, razors, scissars, watches, canes, jewels, and money. These were put into a box, and labelled, with the tower and number of the chamber in which he was to be confined, and by which he was afterwards called; so that the name of a prisoner was never pronounced, nor even known, among the inferior officers of the Bastile, the appellation being No. 1, de la Bertaudiere; No. 2, du Trésor; No. 3, de la Liberté, &c.

After this examination of his person, the prisoner was usually conducted to his apartment, where he was carefully locked up, and an invalid soldier appointed to attend him, who slept near him and waited upon him. The unhappy victim soon found that in this castle all was mystery, trick, artifice, and treachery; the attendant conveyed all his words to the police, while the officers, turnkeys, valets, &c. used every effort to draw him on to speak against government, merely for the purpose of getting a reward for revealing what was said. On a prisoner's first entrance, he was not permitted to write to any person, not even the lieutenant of the police. When a person had obtained permission to write to the latter gentleman, he might solicit the indulgence of being allowed to address a letter to his family, and receive their answers, which on some occasions was granted; but letters when sent were commonly intercepted, and seldom delivered to the friends. The officers of the staff took the charge of conveying the letters of the prisoners to the police, by whom they were sent regularly twice a day, and suitable answers were addressed to the major, who communicated them to the prisoner; but if no notice was taken of any request contained in the letter of the prisoner, it was to be considered as a refusal. A criminal might ask to see the lieutenant of the police when he came to the Bastile, and in that case the conversation always turned upon the cause of his confinement. This gentleman would sometimes ask for written and signed declarations, and on these occasions nothing that the prisoner wrote or said was forgotten. A person confined in the Bastile was never anticipated in any thing—he must ask for every thing; even for permission to be shaved, an office always performed by the surgeon; who also furnished sick or indisposed persons with sugar, coffee, tea, chocolate, confections, and the remedies necessary for their complaints. Their hour of dining was eleven, and of supping, six; and the time allowed for walking was commonly one hour in the day, sometimes an hour in the morning and an hour in the evening, in the great court of the fortress.

To give the reader some imperfect idea of the internal discipline of the Bastile, under its mildest regime, we shall quote a short extract from the account of a prisoner, once confined there.—'About five in the morning,' says he, 'on the 2d of April, 1771, I was awaked by a violent knocking at my chamber door, and was commanded in the name of the king to open it. I did so, and an exempt of the police, three men and a commissary, entered my room. They desired me to dress myself, and began to search the apartment. They ordered me to open my drawers; and having examined my papers, they took such as they chose and put them into a box, which, as I understood afterwards, was carried to the police-office. The commissary asked me my name, my age, the place where I was born, how long I had been at Paris, and the manner in which I had spent my time. The examination was written down; a list was made of every thing found in the room, which, with the examination, I was desired to read, and sign. The exempt then told me to take all my body-linen, and such clothes as I chose, and to come with them. Having shut and sealed the drawers, they desired me to follow; and in going out they locked the chamber door, and took the key. On coming into the street I found a coach, into which I was desired to go, and the others followed me. After sitting for some time, the commissary told me they were carrying me to the Bastile, and soon afterwards I saw the towers. They did not go the shortest and direct road: the coach stopped at the gate in the street of St. Anthony. I saw the coachman make signs to the sentinel, and soon after the gate was opened; the guard was under arms, and the gate shut again. On coming

to the first draw-bridge, it was let down, the guard there also being under arms. The coach went on and entered the castle, where a third guard was stationed. I was conducted to a room that I heard named the council chamber. After an examination similar to that of the commissary, I was desired to empty my pockets, and lay what I had in them on the table. My handkerchief and snuff-box being returned to me, my money, watch, and indeed every thing else, were put into a box, and an inventory having been made, were sealed up in my presence. The major then called for the turnkey, whose turn of duty it was, and asked what room was empty. He said the calotte de la Bertaudiere. He was ordered to convey me to it, and to carry thither my linen and my clothes. The turnkey having done so, left me and locked the doors. The weather was still extremely cold, and I was glad to see him return soon after with fire-wood, a tinder-box, and a candle. He made my fire, but told me, on leaving the tinder-box, that I might in future do it myself when so inclined. At eleven the turnkey entered with my dinner. Having spread the table with a clean napkin, he placed the dishes on it, cut the meat, and retired, taking away the knife; the dishes, plates, fork, spoon, and goblet were of pewter. The dinner consisted of soup and bouillie, a piece of roasted meat, a bottle of good table wine, a pound loaf of the best kind of household bread. In the evening at seven he brought my supper, which consisted of a roast dish, and a ragout. The same ceremony was observed in cutting the meat, to render the knife unnecessary to me. He took away the dishes he had brought for dinner, and returned at eight next morning to remove the supper things. Fridays and Saturdays, being fast or maigre days, the dinners consisted of soup, a dish of fish, and two dishes of vegetables; the suppers of two dishes of garden-stuff, and an omelet, or something made with eggs and milk. The dinners and suppers of each day in the week were different, but every Friday was the same; so that the ordinary class of prisoners saw in the course of the first week their bill of fare for fifty years, if they staid so long. I had remained in my room about three weeks, when I was one morning carried down to the council chamber, and again examined by the commissary. He then asked if I had any knowledge of some works he named, meaning those which had been written by me, if I was acquainted with the author of them, whether there were any persons concerned with him, and if I knew whether they had been printed? I told him that as I did not mean to conceal any thing, I should avoid giving him needless trouble; that I was myself the author of the works he had mentioned, and guessed I was there on that account; that they never had been printed; that the work which I conceived was the cause of my confinement had never been known to any, but one person, whom I thought my friend, and having no accomplices, the offence, if there was any, rested solely with myself. He said my examination was one of the shortest he had ever been employed at, for it ended here. I was carried back to my room, and the next day was shaved for the first time since my confinement, it being usual never to shave a prisoner till after his first examination. A few days afterwards I wrote to the lieutenant of the police, requesting to be indulged with the use of books, pen, ink, and paper, which was granted; but I was not allowed to go down to the library (a collection of about 500 volumes, founded by some prisoner in the early part of the eighteenth century) to choose the books. Several volumes were brought to me by the turnkey, who, when I desired it, carried them back and brought others.

After my last examination I was taken down almost daily, and allowed to walk about an hour in the court within view of the sentinel; but my walks were frequently interrupted, for if any one appeared the sentinel called out 'au cabinet!' and I was then obliged to conceal myself hastily in a kind of dark closet in the wall.

'The sheets of my bed were changed once a fortnight. I was allowed four towels a-week, and my linen was taken to be washed every Saturday. I had a tallow candle daily, and in the cold season a certain number of pieces of fire wood. After being detained above eight months I was informed that an order had come to discharge me. I was desired to go down to the council chamber, every thing I had brought with me was returned, together with the key of my apartment, which I found exactly in the state I left it. During my confinement I wrote many letters to several of my friends, which were always received with civility, but not one of them had been delivered.'

The above was a case of uncommon indulgence, and displays a lenity unusual in the Bastile. In common cases the course pursued was as follows:—The prisoner, a few days after his entrance into the Bastile, was brought down to the council chamber, where a commission of interrogatory was executed by the lieutenant of the police, a counsellor of state, a master of requests, a counsellor or a commissioner of the Chatelet. When the lieutenant of the police did not himself interrogate, he casually came at the end of the examination. These commissioners were mere tools. Frequently they attempted to frighten a prisoner: laying snares for him, and employing the meanest artifices to draw a confession from him. With this insidious view, it was customary to pretend proofs, and exhibit papers without suffering him to read them; asserting that they were instruments of unavoidable conviction. Their interrogatories were always vague, and turned not only on the prisoner's own words and actions, but on his most secret thoughts, and on the discourse and conduct of persons of his acquaintance, whom they likewise wished to bring into question. The examiner usually told the prisoner that his life was at stake; that on that day his fate depended on himself; that if he made a fair declaration, they were authorised to promise him a speedy release; but if he refused to confess he would be given up to a special commission: that they were in possession of decisive documents, and authentic proofs, more than sufficient to ruin him; that his accomplices had discovered all; that the government had unknown resources, of which he could have no suspicion. The pri-

soners were thus beguiled by varied and infinitely multiplied interrogatories; by promises, caresses, menaces, &c. If the prisoner made the required confession, the commissioners then told him that they had no precise authority for his enlargement, but they had every reason to expect it; that they were going to solicit it, &c. The prisoner's confession, far from bettering his condition, usually gave occasion to new interrogatories, often lengthened his confinement, drew in the persons with whom he had connexions, and exposed himself to new vexations. But although there were rules adapted to all occasions, yet every thing was subject to exceptions arising from influence, recommendation, protection, intrigue, &c. Very frequently, persons confined on the same account were treated very differently, according as their recommendation was more or less considerable. The falsest things were told the prisoners with an air of sincerity and concern; as 'it is very unfortunate that the king has been prejudiced against you. His majesty cannot hear your name mentioned without being irritated. The affair for which you have lost your liberty is only a pretext. They had designs against you before, you have powerful enemies' These discourses were the etiquette of the place. It was in vain for a prisoner to ask leave to write to the king, for he never could obtain it. What constituted the perpetual and most insupportable torment of this cruel and odious inquisition, was the vague, indeterminate, false, or equivocal promises, inexhaustible and constantly deceitful hopes of a speedy release, exhortations to patience, and blind conjectures, of which the lieutenant of the police and his officers were very lavish. To cover the odium of the barbarities exercised here, and slacken the zeal of relations or patrons, to obtain justice for incarcerated innocence, the most absurd and contradictory slanders against the prisoner were frequently published; whilst the true causes of imprisonment, and real obstacles to his release, were concealed. These resources, so infinitely varied, were inexhaustible. When a prisoner who was known and protected had entirely lost his health, and his life was thought in danger, he was always sent out; the ministry not choosing that persons well known should die in the Bastile. Whenever a prisoner happened to die there, he was interred in the Parish of St. Paul, under the name of a domestic; and this falsity was also written in this register of deaths, in order to deceive posterity. But there was another register in which the true names of the deceased were entered; though it was not without great difficulty that extracts could be procured from it: and when this indulgence was granted, the commissary of the Bastile was first to be informed of the use the family intended to make of the extract.

Singular Distress of an aged Prisoner in the Bastile. Nowhere else on earth, perhaps, has human misery, by human means, been rendered so lasting, so complete, or so remediless, as within the dire walls of the Bastile of France. This the following case, the particulars of which are translated from that elegant and energetic writer M. Mercier, may sufficiently show. The heinous offence which merited an imprisonment surpassing torture, and rendering death a blessing, though for obvious reasons not specified by our author, is known from other sources to have consisted in some unguarded expression of disrespect towards the Gallic monarch Louis XV. Upon the accession of his late unfortunate successor, the ministers then in office, moved by humanity, began their administration with an act of clemency and justice: they inspected the registers of the Bastile, and set many of the prisoners at liberty. Among the number was an old man, who had groaned in confinement, for a period of forty-seven years, between four thick and cold stone-walls. Hardened by adversity, which strengthens both the mind and the constitution, when men are not overpowered by it, he had resisted the horrors of his long imprisonment with an invincible and manly spirit. His locks, white, thin, and scattered, had almost acquired the rigidity of iron; whilst his body, environed for so long a time by a coffin of stone, had borrowed from it a firm and compact habit. The narrow door of his tomb, turning upon its grating hinges, opened not as usual by halves; and an unknown voice announced his liberty, and bade him depart. Believing this to be a dream, he hesitated; but at length rose up and walked forth with trembling steps, amazed at the space he traversed: the stairs of the prison, the halls, the court, seemed to him vast, immense, and almost without bounds. He stopped from time to time, and gazed around like a bewildered traveller: his vision was with difficulty reconciled to the clear light of day: he contemplated the heavens as a new object: his eyes remained fixed, and he could not even weep. Stupified with the newly acquired power of changing his position, his limbs, like his tongue, in spite of his efforts, refused to perform their office; at length he got through the formidable gate which so long before had closed upon him. When he felt the motion of the carriage designed to convey him to his former habitation, he screamed out, and uttered some inarticulate sounds; and as he could not bear this new movement, he was obliged to descend. Supported by a benevolent arm, he sought out the street where he had formerly resided: he found it, but no trace of his house remained: one of the public edifices occupied the spot where it had stood. He now saw nothing that brought to his recollection, either that particular quarter, the city itself, or the objects with which he had formerly been acquainted. The houses of his nearest neighbours, which were fresh in his memory, had assumed a new appearance. In vain were his looks directed to all the objects around him; he could discover nothing of which he had the smallest remembrance. Terrified, he stopped and fetched a deep sigh. To him, what did it import that the city was peopled with living creatures? none of them were alive to him: he was unknown to all the world, and he knew nobody: and whilst he wept, he regretted his dungeon. At the name of the Bastile, which he often pronounced, and even claimed as an asylum, and the sight of his clothes that marked a former age, the crowd gathered round him: curiosity, blended with pity, excited their attention

The most aged asked him many questions, but had no remembrance of the circumstances he recapitulated. At length accident brought in his way an ancient domestic, now a superannuated porter, who, confined to his lodge for fifteen years, had barely sufficient strength to open the gate: he did not even know the master he had served; but informed him that grief and misfortune had brought his wife to the grave thirty years before, that his children were gone abroad to distant climes, and that of all his relations and friends none now remained. This recital was made with the indifference which people discover for events long passed, and almost forgotten. The miserable man groaned, and groaned alone. The crowd around, offering only unknown features to his view, made him feel the excess of his calamities even more than he would have done in the dreadful solitude that he had lately quitted. Overcome with sorrow, he presented himself before the minister, to whose humanity he owed that liberty which was now a burden to him. Bowing down, he said, 'restore me again to that prison from which you have taken me: I cannot survive the loss of my nearest relations; of my friends; and, in one word, of a whole generation. Is it possible in the same moment to be informed of this universal destruction, and not to wish for death? This general mortality, which to the rest of mankind comes slowly and by degrees, has to me been instantaneous, the operation of a moment. Whilst secluded from society, I lived with myself only; but here I neither can live with myself nor with this new race, to whom my anguish and despair appear only as a dream. There is nothing terrible in dying; but it is dreadful indeed to be the last.' The minister was melted; he caused the old domestic to attend this unfortunate person, as only he could talk to him of his family. This discourse was the single consolation that he received: for he shunned all intercourse with a new race, born since he had been exiled from the world; and he passed his time in the midst of Paris in the same solitude as he had done whilst confined in a dungeon for almost half a century. But the mortification of meeting no person who could say to him, 'we were formerly known to one another,' soon put at end to his existence.

The man with the mask was the most astonishing prisoner ever known to have been within the walls of the Bastile; of whom, notwithstanding all the curiosity and conjecture that have been employed to ascertain his quality and pedigree, nothing authentic has transpired to the present time. In 1698 he was brought from the island of St. Marguerite by Mons. de St. Mars, the newly appointed governor of the Bastile, was attended with the greatest respect, maintained a sumptuous table, and had every possible indulgence shown him till the time of his death in Nov. 19, 1703. This mysterious prisoner, on his removal to the Bastile, was carried in a litter, accompanied by several men on horseback, who had orders to put him to death if he made the smallest attempt to show his face or otherwise discover himself. His face was concealed by a mask of black velvet with springs of steel, which were so contrived that he could eat without taking it off. A physician of the Bastile, who had often attended him, said he had never seen his face, though he had frequently examined his tongue and other parts of his body; but added, that he was admirably well made, that his skin was brown, his voice interesting; that he was very accomplished, read much, played on the guitar, and had an exquisite taste for lace and fine linen.

The pains taken for his concealment shows that he was a person of considerable quality and importance, and from the following circumstances it appears singular that he was never discovered. Whilst at St. Marguerite, he one day wrote something with his knife on a silver plate, and afterwards threw the plate through the window towards a boat which lay near the tower. A fisherman took up the plate and brought it to the governor, who, with great astonishment, asked the man if he had read the writing or shown it to any other person; and, although he answered in the negative, put him into confinement till he was perfectly satisfied, after which he dismissed him, saying, 'It is lucky for you that you cannot read.' The abbé Papon says, in the year 1778 I had the curiosity to visit the apartment of this unfortunate prisoner: it looks towards the sea. I found in the citadel an officer in the independent company there, seventy-nine years of age. He told me that his father had often related to him that a young lad, a barber, having seen one day something white floating on the water, took it up. It was a very fine shirt, written almost all over; he carried it to Mons. de St. Mars; who, having looked at some parts of the writing, asked the lad, with an appearance of anxiety, if he had not had the curiosity to read it. He assured him that he had not, but two days afterwards the boy was found dead in his bed.

Mons. de Jonca, for many years Lieutenant du Roi, kept an exact journal of all that passed in the Bastile. He thus records the death of the black mask. 'Monday, Nov. 19, 1703. The unknown prisoner, whom Mons. de St. Mars brought with him from the island St. Marguerite, where he had been a long time under his care, and who has always been masked with a mask of black velvet, found himself worse yesterday in coming from mass and died this evening at ten o'clock, without any great illness. The smell, however, is not less offensive. Mons. Girault, our chaplain, confessed him yesterday, his death being sudden he had not an opportunity of taking the sacraments; but our chaplain exhorted him a few minutes before he expired. He was buried on Tuesday, the 20th of November, in the burying-place of our parish of St. Paul. His burial cost forty livres.'

Immediately after the prisoner's death his apparel, linen, clothes, mattresses, and every thing that had been used by him, were burnt; the walls of his room were scraped, the floor was taken up, and every precaution used that no trace of him might be left behind; and yet there are traces. When he was on the road from St. Marguerite to his last residence, Mons. de St. Mars was overheard to reply to a question of the prisoner, relative to any design against his life. 'No, prince, your

life is in safety; you must only allow yourself to be conducted.' A prisoner told Mons. la Grange Chancel that he was lodged, with other prisoners, in the room immediately over this celebrated prisoner, and found means of speaking to him by the vents of the chimney; but he refused to inform them who he was, alleging, that it would cost his own life, as well as the lives of those to whom the secret might be revealed. Various have been the individuals supposed to be the masked prisoner; particularly the duke de Beaufort, the count de Vermandois, a foreign minister, and the duke of Monmouth, have been conjectured in turn. Collateral facts, nevertheless, demonstrate that neither of these could have been the person. Voltaire, who has expressly written on this mysterious affair, says, that the secret was known to Mons. de Chamillard, and that the son-in-law of that minister conjured him on his death-bed, to tell him the name of the man with the mask; but he replied that it was a secret of state which he had sworn never to divulge. The most singular circumstance of the whole, perhaps, is, that during the confinement of this man with the mask no person of importance was missing in Europe; whence it has been thought that he was the twin brother of Louis XIV., whose birth was concealed by the advice of cardinal Richelieu, but himself preserved, lest, by the death of his brother, it should be necessary to avow him.

Upon the whole, after a long series of oppressions, the horrors of the Bastile became so notorious that in July, 1789, the people made an attack upon the building, which held out a few hours and afterwards surrendered. The governor was seized, carried through the streets, and afterwards beheaded. The major, aid-major, and lieutenant of the invalids, were killed in the streets. One soldier was killed and four wounded in the defence; but numbers were wounded, another killed, and two hanged, at the Grêve, by the populace, as soon as they gained possession; the prisoners were feasted and made public spectacles in Paris, the governor's house and adjacent buildings were levelled, and the mayor afterwards decreed that the whole edifice should be demolished. See Boulanvilliers' Histoire de l'ancien Gouvernement, tom. iii.; Memoires du Maréchal Duc de Richelieu The History of the Bastile, Lond. 1790, 8vo.

BASTIMENTOS, several small islands near Terra Firma, in South America, at the mouth of the bay of Nombre de Dios, east of Porto-Bello. These islands form a very good port which serves as a watering-place for smugglers. Here admiral Hosier lay with a British squadron many years ago, and the station being unhealthy it proved fatal to himself and the greater part of his men. Long. 79° 40′ W., lat. 9° 32′ N. It was on this circumstance that Glover, the author of Leonidas, grounded his spirited ballad of Hosier's Ghost.

Bastinade, Bastonade, or Bastonado, the punishment of beating a criminal with a stick. It was in use among the ancient Greeks, Romans, and Jews, and still is among the Turks. The Romans called it fustigatio, fustium admonitio, or fustibus cædi; which differed from the flagellatio, as the former was done with a stick, the latter with a rod, or scourge. The fustigation was a lighter punishment, inflicted on freemen; the flagellation more severe, and reserved for slaves. It was also called tympanum, because the patient here was beaten with sticks, like a drum. It is much used in the East to this day. The method there practised is this: the criminal being laid on his belly, his feet are raised, tied to a stake, and held fast by officers for the purpose, in which posture he is beaten by a cudgel on the soles of his feet, back, chine, &c. to the number of one or more blows. Dr. Shaw suggests (Travels, p. 253.), that it was probably in this manner that St. Paul was 'thrice beaten with rods.'

BASTION, *n. s.* Fr. *bastion*. A huge mass of earth, usually faced with sods, sometimes with brick, rarely with stone, standing out from a rampart, of which it is a principal part, and was anciently called a bulwark.

> And with five *bastions* it did fence,
> As arming one for every sense. *Marvell.*
> To ward: but how? ay there's the question:
> Fierce the assault, unarm'd the *bastion*. *Prior.*

Bastion, in fortification, a large mass of earth at the angles of a work, connecting the curtains to each other. It is formed by two faces, two flanks, and two demigorges. The two faces form the saliant angle, or angle of the bastion; the two flanks form with the faces, the epaules or shoulders; and the union of the other two ends of the flanks with the curtains, forms the two angles of the flanks. There are various kinds of bastions: such as,—*Bastion composed*, when two sides of the interior polygon are very unequal, making the gorges also unequal. *Bastion cut, or Bastion with a tenaille*, is that whose point is cut off, and which instead thereof has a re-entering angle, or an angle inwards, with two points outwards. It is used either when without such a contrivance the angle would be too acute, or when water or some other impediment hinders the carrying on the bastion to its full extent. *Bastion deformed*, is when the irregularity of the lines and angles throws the bastion out of shape: as when it wants one of the demigorges, one side of the interior polygon being too short, &c. *Bastion flat*, is one built in the middle of the curtain, when it is too long to be defended by the usual bastions of the extremities. *Bastion half*, or *Demi-bastion*, also called an epaulement, has but one face and flank. *Bastion, solid*, is one entirely filled up with earth to the height of the rampart, without any void space towards the centre. *Bastion, void*, or *hollow*, has the rampart and parapet ranging only round the flanks and spaces, so that a void space is left within towards the centre, where the ground is so low that if the rampart be taken, no retrenchment can be made in the centre, but what will lie under the fire of the besieged.

BASTOGNE, or Bastognac, a large town of the duchy of Luxemburg, in the Netherlands. It carries on a considerable trade in corn and cattle, and was formerly much more flourishing than at present; but is still, after Luxemburg, the best town in this part of the Netherlands. The French took it in 1688, and demolished the fortifications. Twenty-two miles north-west of Luxemburg, and thirty-five south of Liege.

BASTON, BATON, or BATTON, in heraldry. See BATTON.

BASTON, BATOON, in architecture, a moulding in the base of a column, called also torus. See ARCHITECTURE, Index.

BASTON, in law, one of the servants to the warden of the Fleet-prison, who attends the king's courts with a red staff, for taking into custody such as are committed by the court. He also attends on prisoners who are permitted to go at large by licence.

BASTON (Robert), a Carmelite monk, prior of the convent at Scarborough, and poet laureat and public orator at Oxford, in the fourteenth century. Edward I. in his expedition into Scotland in 1304, took Baston with him to celebrate his victories over the Scots; but the poet being taken prisoner, was obliged to change his note, and sing the successes of Robert Bruce. He wrote several books in Latin, on the Wars of Scotland, the Luxury of Priests, Synodical Sermons, &c.; and also a volume of Tragedies and Comedies in English. He died about A. D. 1310.

BASTONIER, or BATONIER, one who keeps the staff of a community, and carries or follows it in processions.

BASTWICK (Dr. John), born at Writtle, in Essex, in 1593. He was educated at Emanuel College, Cambridge, from whence he went to Padua, where he took his degree of M. D. He afterwards practised physic at Colchester; but being a man of warm imagination, and a good Latin scholar, he used great freedom in writing against popery. About 1633 he printed in Holland a Latin treatise, entitled Elenchus religionis Papisticæ, with Flagellum Pontificis et Episcoporum Latialium, in which the English prelates, thinking themselves aimed at, he was fined £1000 in the high commission court, excommunicated, prohibited from practising physic, his books ordered to be burnt, and himself to remain in prison until he recanted. Instead of recanting, he wrote in prison, Apologeticus ad præsules Anglicanos; and another book called, The Litany; wherein he severely exclaimed against the proceedings, and taxed the bishops with an inclination to popery. He was now condemned by the star-chamber to pay a fine of £5000, to be pilloried, lose his ears, and endure perpetual imprisonment. The parliament in 1640 reversed these proceedings, and ordered Dr. Bastwick a reparation of £5000 out of the estates of the commissioners who had prosecuted him.

BAT, *v.* & *n.*, BA'TLET, BA'TON, B'ATTER. Bat, Sax. This word seems to have given rise to a great number of words in many languages; as, *battre*, Fr. to beat; *baton*, *battle*, *beat*, *batty*, and others. It probably signified a weapon that did execution by its weight, in opposition to a sharp edge; whence whirlbat and brickbat; a heavy stick or club: the citation of Spenser gives another meaning, which agrees with the provincial usage of the word in Sussex, where a walking-stick is called a *bat*; the *bat* is also now a common word for what was once the stick in driving back the ball at the game of cricket.

But while he spake, lo Judas, oon of the twelve came, and with him a greet company with swerdis and *battis*. *Wicliffe. St. Matt.* xxvi. 47.

Here were we first *ybatred* with the dartes
Of our owne feers from the hye temples top.
Surrey

But neither sword nor dagger he did beare;
Seemes that no foes revengement he did feare;
Instead of them a handsome *bat* he held,
On which he leaned, as one far in elde. *Spenser.*
Estsoones the ape himself gan to vpreare
And on his shoulders high his *bat* to beare,
As if good service he were fit to doe. *Id.*

Nay, come not near the old man, keep out, che vor' ye, or I'se try whether your costard or my *bat* be the harder. *Shakspeare.*

And I remember kissing of her *batlet* [a handle used in beating linen when taken out of the buck] and the cows' dugs that her pretty chopped hands had milked. *Id.*

They were fried in arm chairs, and their bones broken with *bats*. *Hakewill.*

We came close to the shore and offered to land; but straightway we saw divers of the people with *bastons* in their hands, as it were forbidding us to land. *Bacon.*

Get me a baton; 'tis twenty times more court-like, and less trouble; and yet you wear a sword.
Beaumont and Fletcher. Elder Brother.

That does not make a man the worse,
Although his shoulders with *batoon*
Be claw'd and cudgell'd to some tune. *Hudibras.*

BAT, BAT'EYED, BAT'TISH, BAT'FOWLER, BAT'FOWLING, BAT'TY. Skinner's conjecture that this word is derived from the old Saxon word *bat*, a boat, because the creature it describes, with its wings expanded, resembles a boat impelled by oars, is more ingenious than solid. Our ancestors were accustomed to denominate the animal *back*; it is called so in Huloet's old dictionary; that and reremouse appear to have been the usual words for it; 'the other face had wings like a backe or flindermouse.' See Knight. Tryal of Truth, 1580, fol. 96; from hence, probably, Dr. Jamieson's derivation of backie-bird, its modern name in Scotland; we know not the reason for the change into *bat*.

See the *bat* hath flown
His cloister'd flight, ere to black Hecate's summons
The shard-borne beetle with his drowsy hums
Hath sung night's yawning peal, there shall be done
A deed of dreadful note. *Shakspeare.*

Wool of *bat*, and tongue of dog,
Adder's fork and blind worm's sting,
Lizard's leg and owlet's wing,
For a charm of powerful trouble,
Like a hell-broth boil and bubble. *Id.*

GON. You are gentlemen of brave mettle; you would lift the moon out of her sphere if she would continue in it five weeks without changing.

SEB. We would so, and then go a *bat-fowling*.
Id. Tempest.

Yet could his *bat-ey'd* legions eas'ly see
In this dark chaos. *Fletcher. Purple Island.*

But then grew reason dark; that she no more
Could the fair forms of good and truth discern;
Bats they became, that eagles were before;
And this they got by their desire to learn. *Davies.*

Some animals are placed in the middle betwixt two kinds, as *bats*, which have something of birds and beasts. *Locke.*

Where swallows in the winter season keep,
And how the drowsy *bat* and dormouse sleep. *Gay.*

Bodies lighted at night by fire, must have a brighter lustre than by day,—as sacking of cities, *bat-fowling*. *Peachan.*

Far different there from all that charm'd before,
The various terrors of that horrid shore;
Those matted woods where birds forget to sing,
But silent *bats* in drowsy clusters cling. *Goldsmith.*

The birds of passage would in a dark night immediately make for a light-house, and destroy themselves by flying with violence against it, as is well known to *bat-fowlers*.

BAT, BATCH, BATE, or BATZ. See BATZ.

BAT-FOWLING, a particular manner of bird-catching in the night-time, while they are at roost upon perches, trees, or hedges. They light torches or straw, and then beat the bushes: upon which the birds, flying to the flames, are caught either with nets or otherwise.

BAT, in zoology. See VESPERTILIO.

BAT-HORSES, or BAW-HORSES, in military affairs, baggage-horses belonging to the officer when on actual duty. Bat-men, or Baw-men, originally servants hired in war time to take care of the horses belonging to the artillery, &c. The same name is now given to those who are excused regimental duty for the express purpose of attending to the horses belonging to the officers.

BATA, in botany, the Musa Paradisiaca of Linnæus.

BATACOLO, a small fort and garrison on the east of the island of Ceylon. Lat. 7° 45′ N., long. 81° 50′ E. This place has little or no connexion with the south and west parts of the island, the harbour being incommodious. Here is also an uncommonly bold shore, and immense rocks of very grotesque figures, such are the Friar's Hood, the Elephant, and the Pagoda Rocks.

BATANY, BATANG, or BATANY HOOK, a sea-port town on the east coast of the island of Gilolo, where cruizing vessels were formerly kept by the Dutch for the prevention of smuggling. There is a spacious natural fortress on a point of land of very difficult access, and containing several houses and gardens. The whole area thus surrounded is about three miles in circumference.

BATARDEAU, in bridge building. See COFFER-DAMS.

BATATAS, in entomology, a species of acarus, found on the potatoe in Surinam, and some other parts of South America. It is rather rough and sanguineous; anterior legs as long as the body.

BATAVA, in ancient geography, a citadel of Vindelicia, so called from the Cohors Batava, in garrison under the commander in Rhætia; now Passau; being called Batau, from the Batavi; then Bassau, and Passau; situated in Bavaria, at the confluence of the Danube, Inn, and Iltz. See PASSAU.

BATAVI, the ancient Batavians, a branch of the Catti, who, in a domestic sedition, being expelled their country, occupied the extremity of the coast of Gaul, or the modern Holland, at that time uninhabited, together with the island, called from them Insula Batavorum, situated among shoals. Thus, Lucan, l. 1, v. 431.

Vangiones: Batavique truces, quos ære recurvo
Stridentes acuere tubæ:

Their name Batavi they carried with them from Germany, there being some towns in the territory of the Catti, called Battenberg, and Battenhausen. The bravery of the Batavi, especially the horsemen, procured them not only great honor from the Romans, being called their brothers and friends; but an exemption from taxes, being obliged only to furnish men and arms.

BATAVIA, a city on the north coast of the island of Java, the capital of the Dutch settlements in the East Indies. It stands at the mouth of the river Jacatra, in the bosom of a large commodious bay, which is one of the safest harbours in India. Lat. 6° 12′ N., long. 107° 4′ E. The Jacatra passes through the midst of the town, and forms various canals of running water, all faced with freestone, and adorned with trees: over these canals are upwards of fifty bridges, besides those which lie without the town. The streets are all perfectly straight, and each, on an average, thirty feet broad. The houses are built of stone. The city is about a league and a half in circumference, and has five gates; but there are far more houses without than within them.

A circular range of islands protects the harbour of Batavia from any heavy swell, and renders it safe anchorage, these are Onrust, Edam, Cooper's Isle, and Purmerend, containing warehouses, hospitals, and naval arsenals. From the roadstead there are scarcely any of the buildings of Batavia visible, except the great church, the rest being hid by the palms and other high spreading trees.

Batavia is well fortified, and the approaches both by sea and land are secured by strong outworks. On an island, at the entrance of the harbour, there is a fort which commands that passage, and protects the extensive dock-yards. The citadel, on the east bank of the Jacatra, is a regular fortress, built of coral rock: it contains the house of the governor-general of the Indies, and the principal authorities. The great church is said to have cost £80,000; but the public buildings, generally, are inferior. There are besides five other Christian churches, a mosque, and a temple belonging to the Chinese; the stadt-house, bridewell, infirmary, orphan-house, and two public hospitals, one of which is in the island of Purmerend. Here are also arsenals and magazines, well stocked with military stores and ammunition. The government consists of a council formed by the governor-general of the East Indies, who is president, the director-general, or governor of Java, nine members, and two secretaries. The power of this body is absolute, and the governor-general may, on his own responsibility, adopt any measures rejected by the others. The police and criminal magistracy is under a Fiscal, who can levy fines and inflict punishments at discretion. The regulation of all matters relating to navigation are under the marine fiscal; and a Shâh-bender, or captain of the port, acts as consul-general for all nations. A garrison of about 5000 men was maintained by the Dutch, in Batavia, before it was captured by our troops, under Sir Samuel Auchmuty in 1811. At that period the number of inhabitants was 47,217.

In 1792 this city contained upwards of 5000 houses liable to be rated; and a population of 115,960 souls, of which 6000 were citizens, 22,000 Chinese, and 17,000 slaves! The ma-

population of Batavia and its immediate dependencies, is estimated at 150,000 souls. The last census of the town is as follows:

Europeans, 543; Arab, 318; Javanese, 3331; Bali-men, 7720; Moluccans, 82; native Dutch, 1485: Malays, 3155; Macassars, 4115; Sumbayans, 237; Timorotes, 24; Chinese, 11,854; Slaves, 14,239.

The principal articles imported are cloths, drugs, and opium, from Bengal; camphor, benzoin, birds-nests (hirundo esculenta), coa-lin, and ivory, from Sumatra; garden-seeds, butter, Madeira and Constantia wines, from the Cape of Good Hope; porcelain, tea, silks, nankeens, alum, borax, sulphur, cinnabar, mother of pearl, paper, sweetmeats, and tobacco, from China; copper, sword-blades, camphor, soy, porcelain, lackered ware, and silks, from Japan. The exports from Batavia are pepper, sugar, rice, coffee, and arrack; sanchú, (burnt wine.) a kind of Chinese arack. To China, besides these articles, they send birds-nests, of the edible swallow, bicho do mar, sea-slug, or holothuria; cotton, spices, tin, rattans, sapan-wood, sago, and wax. To Borneo and the Moluccas, piece-goods, opium, and a few European articles. To the other Dutch settlements, rice. Bullion was the principal article imported from Europe before the French revolution.

Batavia has always been unhealthy; and the mortality in the garrison of the fort is almost incredible. This arises evidently from the peculiar position of the town, and its injudicious ornaments. The plain around is flat, and filled with rice grounds, which must necessarily be often laid under water; while the streets have each its canal and row of evergreens, which at once occasion pestiferous exhalations, and prevent a free circulation of the air. A part of the plain, also, on the left of the fort, is an impracticable morass. The thermometer at Batavia is seldom above 90°, and usually as low as 84°: hence it is not excess of heat that makes it so unhealthy, yet such is the mortality, that one-fifth of the European inhabitants die annually.

Amongst other causes of this, however, the intemperance of the mode of living must not be overlooked. The vile habits of the Pagan and Mahommedan natives are but too contagious with the Europeans. The multitude of domestic slaves is a source of the worst habits: and most of the female part of society are a degenerate, debased race, lost in indolence and sensuality.

'Notwithstanding the republican form of the Dutch government,' says Mr. Hamilton, 'in no part of the world is the distinction of ranks so minutely and frivolously attended to as at Batavia, and the salaries allowed to the Dutch Company's servants being inadequate to the support of the establishment they think necessary for the support of their dignity, corruption and bribery are universal. In society every individual is as stiff and formal, and as feelingly alive to every infraction of his privileges, as if his happiness or misery depended on the due observance of them. Nothing is more particularly attended to at entertainments by the master of the house, than the seating of every guest, and drinking their healths in the exact order of precedency.

To provide against future disputes on the subject of precedency, the respective ranks of all the company's servants were ascertained by a resolution of government, which was revised and renewed in 1764. The act by which these rules were first established consists of 131 articles, and enters into the most minute details respecting the carriages, horses, chairs, servants, &c. &c. of the company's servants.

'By the eighth article, little chaises for children, drawn by the hand, must not be gilt or painted but in exact proportion to the rank of the parents. Ladies whose husbands are below the rank of counsellors of the Indies, may not wear at one time jewels more in value than six thousand rix dollars: wives of senior merchants are limited to four thousand; others to three, two, and one thousand rix dollars.

'Article forty-ninth permits ladies of the higher ranks to go abroad with three female attendants, who may wear ear-rings of single middle sized diamonds, gold hair pins, petticoats of cloth, of gold, or silver gauze; chains of gold and of beads, and girdles of gold; but they must not wear diamonds, pearls, nor any kind of jewels in their hair. Wives of senior merchants may have two, and ladies in an inferior station one female attendant, who may wear ear-rings of small diamonds, gold hair pins, a jacket of fine linen, and a chintz petticoat; but no gold or silver stuffs or silks, or any jewels, true or false pearls, or any ornament of gold. The eighty-third article recommends to the Dutch East India Company's servants in Bengal, not to surpass their predecessors in pomp of dress and appearance; and the 110th permits the director of the factory at Surat, when he goes abroad in state, to carry among other things, four fans, made after the fashion of the country, with the feathers of the bird of paradise and cow-hair, with gold cases and hands. It is remarkable, that in these regulations the tax on carriages increases downwards, from the higher to the lower ranks, and penalties are attached to the infraction of these statutes.'

The Chinese, who are the most effective part of the population, are indefatigably industrious, but notorious at the same time for cunning and dishonesty. 'The Dutch,' they say, 'have only one eye, but the Chinese have two.' All the mechanic trades are carried on by them; and the more wealthy are merchants, some of whom farm the customs and taxes. They inhabit a separate town, or campong, close to the city; it is thronged with men and pigs, of which the Chinese keep some hundred thousands. The Malays, who are Mahommedans, have a bad character; but they have been misrepresented by the Dutch, whose narrow, tyrannical policy has alienated the affections of most of the natives. The Amboynese, generally employed as builders, are bold and turbulent.

The foundations of Batavia were laid in 1619 by the Dutch commodore Koen, and so prompt and successful were his companions, that it soon became the metropolis of the East India possessions. In 1629 it compelled an army of 200,000 Javanese to retire, after a siege of several months. Not long after, the viceroy rebelled against the emperor of Java: the Dutch

did not fail to turn this circumstance to their own advantage; and at length contrived to get these sovereigns completely into their power. Their avarice and injustice, however, made the natives very anxious to emancipate themselves, and in 1722 a general conspiracy was discovered, only just in time to prevent its execution. In 1740, not twenty years afterwards, 12,000 Chinese were massacred in one day, by order of the governor, on the plea, real or pretended, of a similar movement.

In 1798 a new camp at Welte Freden was established in a woody plain, a league and a half up the country. The road to it is along a fine causeway, with country seats on one side, and on the other a navigable canal. The barracks, which are built of wood and stone, occupy a third of the ground on the opposite side of the entrance. The Tannabang, a large Malay village, in which there are several Chinese families, stands on a height two leagues and a half from the city. Mester Cornelis is a small fort, a league beyond Welte Freden, surrounded by small Javanese, Malay, and Chinese villages. The ground rises insensibly to Mester Cornelis, which is seen half a mile off. This fort lies in a hollow, on the bank of the great river, commanded by a small height. On the right and left of the road are bamboo barracks for the Maduran artillery, of which this is the depôt. The fort is built of stone, but is not strong, the demi-bastions being scarcely two feet thick, by four high, and surrounded by a dry ditch. The entrance is by a stone bridge, within which is the guard-house, and near to it another house occupied by the European artillery. The fort is quitted by another bridge on the opposite side, communicating with a range of wooden barracks, in which are the artillery officers and companies under training.

The whole of the Dutch policy here has been wretchedly arbitrary and severe; and although Sir Stamford Raffles, the British governor, during our possession of the place, very successfully reformed their system, the new authorities are said to have returned to it. But Sir Stamford observes, 'of the splendor and magnificence which procured for this capital the title of the Queen of the East, little is now to be found. Streets have been pulled down, canals half filled up, forts demolished, and palaces levelled with the dust. The stadt-house, where the supreme court of justice and magistracy still assemble, remains; merchants transact their business in the town during the day, and its warehouses still contain the richest productions of the island, but few Europeans of respectability sleep within its limits.'

BATAVIA, the ancient name of Holland. See BATAVORUM.

BATAVIAN REPUBLIC, one of the late democratic states, formed upon the plan of the French republic, out of the ci-devant United Provinces, or States of Holland. The Stadholderate was abolished in 1795, and the republic established March 1798. On the 24th of May 1806, it was converted into a kingdom, and Prince Louis Napoleon appointed hereditary and constitutional king of Holland. See HOLLAND.

BATAVORUM OPPIDUM, in ancient geography, a town in the island of Batavia, mentioned by Tacitus: some suppose it to be Nimeguen.

BATCALE, or BATACOLE, a sea-port on the coast of Malabar, Hindostan, where the East India Company formerly had a settlement. In 1670 all the settlers were murdered by the natives, but it was again ceded to the company. Twenty miles north from Barcelore.

BATCHELOR'S PEAR, a name given to a species of nightshade. See SOLANUM.

BATCH, the past participle of *bake*, to bake; any entire quantity; a batch of bread is the bread baked at the same time.

How now, thou core of envy,
Thou crusty *batch* of nature, what's the news?
Shakspeare.

Except he were of the same meal and *batch*.
Ben. Jonson.

BATCHIAN ISLAND, one of the Moluccas, separated from Gilolo by a narrow strait, and situated between the equator and the first degree of south latitude. It is of an irregular shape, in length about fifty-two miles, by twenty the average breadth. In 1775 the Sultan of Batchian claimed dominion over the islands of Ooby, Ceram, and Goram, but was himself entirely subject to the influence of the Dutch. The inhabitants of Batchian are Malay Mahommedans.

BATE, BA'TABLE, BA'TEFUL. } Dr. Johnson thinks it is contracted from debate; Skinner imagines that it is derived from Ang. Sax. *beatan* to beat to strike; Todd says positively it is from the Saxon bate, contention, strife or a make-bate.

Among which fooles (mark Baldwine) I am one,
That would not stay myself in mine estate;
I thought to rule, but to obey to none,
And therefore fell I with my king at *bate*.
Mirror for Magistrates.

Naked as from the wombe we came, if we depart,
What toyle to seeke that we must leve? what *bate*
to vex the heart?
What lyef leade testey men, they that consume their
days
In inwarde freets, untemper'd *bates*, at stryef with
sum alwaies. *Surrey. Eccles.* chap. iv.

Pletyng the lawe
For ev'ry strawe,
Shall prove a thrifty man,
With *bate* and strife,
But by my life
I cannot tell you whan. *Sir Thos. More.*

Breeds no *bate* with telling of discreet stories.
Shakspeare.

An honest, willing, kind fellow, as ever servant shall come in house withal; and I warrant you no tell-tale nor no breed-*bate*. *Id.*

This sour informer, this *bate*-breeding spy,
This canker that eats up love's tender spring,
This carry-tale, dissensious jealousy,
That sometimes true news, sometimes false, doth
bring. *Id. Venus and Adonis.*

These appear unto us like unto the *batable* ground lying betwixt England and Scotland, (whilest as yet two distinct kingdomes) in so dubious a posture it is hard to say to which side they do belong.
Fuller. General Worthies.

Batable ground is terra pugnabilis. *Batable* ground seems to be the ground heretofore in question, whether it belonged to England or Scotland, lying between both kingdoms. *Cowel.*

He knew her haunt, and haunted in the same,
And taught his sheep her sheep in food to thwart;

Which soon as it did *bateful* question frame,
He might on knees confess his guilty part. *Sidney.*

BATE, BATE'LESS, BATE'MENT, BA'TING. } Contracted from *abate*, old Saxon; to beat down; to depress; to lessen; to diminish; to sink; or cause to sink; to cut off; to take away; to remit.

Shall I bend low, and in a bondsman's key,
With *bated* breath, and whisp'ring humbleness,
Say this? *Shakspeare. Merchant of Venice.*

GON. Sir, we were talking, that our garments seem now as fresh, as when we were at Tunis, at the marriage of your daughter: who is now queen.

ANT. And as the rarest thing that e'er came there, *Bate*, I beseech you, widow Dido. *Id. Tempest.*

Bardolph, am not I fallen away vilely since this last election? Do I not *bate?* Do I not dwindle? Why my skin hangs about me like an old lady's loose gown. *Id. Henry IV.*

Yet I argue not
'Gainst Heaven's hand or will, nor *bate* a jot
Of heart or hope; but still bear up and steer
Right onward. *Milton.*

Abate thy speed, and I will *bate* of mine. *Dryden.*

When the landholder's rent falls, he must either *bate* the labourer's wages, or not employ or not pay him. *Locke.*

To abate, is to waste a piece of stuff: instead of asking how much was cut off, carpenters ask what *batement* that piece of stuff had.
Moxon's Mechanical Exercises.

But I hate disputes; and (therefore *bating* religious points, or such as touch society,) I would subscribe to any thing which does not choak me in the first passage, rather than be drawn into one. *Sterne.*

BATE, *v.* a term in falconry; to flutter the wings, as preparing for flight, particularly at the sight of prey: probably from *battre*. Fr.

All plumed like estridges that wing the wind;
Bated like eagles having lately bathed.
Shakspeare. I. Henry IV.

Hood my unmann'd blood *bating* in my cheek.
Id. Romeo and Juliet.

It is a natural action with birds, after bathing, to shake the moisture from their wings; also when desirous of their food or prey, as in the following passage:

No sooner are we able to prey for ourselves, but they brail and hood us so with sour awe of parents, that we dare not offer to *bate* at our desires.
Albumazar. Old Play vii. 179.

The true meaning of the word is beautifully exemplified in the following passage of Bacon:

Wherein (viz. in matters of business) I would to God that I were hooded, that I saw less; or that I could perform more; for now I am like a hawk that *bates*, when I see occasion of service; but cannot fly because I am ty'd to another's first.

BATE (George), an eminent physician, born at Maid's Morton, near Buckingham, in 1608. In 1629 he obtained a licence, and for some years practised in and about Oxford; chiefly among the Puritans. In 1637 he took his degree of M. D., and became so eminent, that when king Charles I. kept his court at Oxford he was his principal physician. When the king's affairs declined, Dr. Bate removed to London, where he became physician to the Charter-house, fellow of the college of physicians, and afterwards principal physician to Oliver Cromwell. Upon the Restoration he again got into favor with the royal party, was made principal physician to king Charles II., and fellow to the Roya. Society; and this, as we are told by Wood, owing to a report raised by his friends that he gave the protector a dose which hastened his death. Dr. Bate wrote in Latin a history of the civil wars in England, and some other tracts on physical subjects. He died at his house in Hatton-garden, and was buried at Kingston-upon-Thames in Surrey.

BATE (John), prior of the monastery of Carmelites at York in the fifteenth century, was born in Northumberland, and educated at York and Oxford. Bate abundantly answered the hopes conceived of him, and became an eminent philosopher and divine, remarkable for his skill in the Greek tongue. He took the degree of D. D. at Oxford, and afterwards distinguished himself as an author. The Carmelites of York were so sensible of his merit, that, upon a vacancy, they offered him the government of their house; which he accepted, and discharged that office with great prudence and success. He died in 1423, in the beginning of the reign of Henry IV.

BATE (Julius), a voluminous author, and an intimate friend of the celebrated Hutchinson; by whose recommendation he obtained from Charles, duke of Somerset, a presentation to the living of Sutton in Sussex. His publications were: 1. An Essay towards explaining the first Chapter of Genesis, in answer to Mr. Warburton, 1741, 8vo. 2. The Philosophical Principles of Moses asserted and defended against the Misrepresentations of Mr. David Jennings, 1744, 8vo. 3. Remarks upon Mr. Warburton's Remarks, shewing that the Ancients knew there was a Future State, and that the Jews were not under an equal Providence, 1745, 8vo. 4. The Faith of the Ancient Jews in the Law of Moses, and the Evidence of the Types, vindicated in a Letter to Dr. Stebbing, 1747, 8vo. 5. Micah, v. 2. and Matthew, ii. 6. reconciled, 1749, 8vo. 6. An Hebrew Grammar, formed on the Usage of the Words by the Inspired Writers, 1750, 8vo. 7. The Use and Intent of Prophecy, and History of the Fall, cleared, 1750, 8vo.; this was occasioned by Middleton's Examination of Sherlock. 8. The Blessing of Judah and Jacob considered, and the Æra of Daniel's Weeks ascertained, in two Dissertations, 1753, 8vo. The Integrity of the Hebrew Text and many Passages of Scripture vindicated from the Objections and Misconstructions of Mr. Kennicot, 1755, 8vo. 10. A Reply to Dr. Sharp's Review, and Defence of his Dissertations on the Scripture Meaning of Eloim and Berith, 1755, 8vo. 11. A Reply to Dr. Sharp's Review and Defence of his Dissertation on the Scripture Meaning of Berith; with an Appendix in Answer to the Doctor's Discourse on Cherubim, Part II., 1755, 8vo. 12. Remarks upon Dr. Benson's Sermon on the Gospel Method of Justification, 1755, 8vo. 13. Critica Hebræa, or a Hebrew English Dictionary without Points, &c. 1764, 4to. 14. A new and literal Translation from the original Hebrew of the Pentateuch of Moses, and of the Historical Books of the Old Testament, to the end of II. Kings; with Notes critical and explanatory, 1737, 4to. This learned writer died April 7th, 1771.

BATE, or BHATTA ISLE an island of the pro-

vince of Gujrat, Hindostan, at the south-west extremity of the gulf of Cutch. It possesses a good harbour, and a fort, but is very barren. The town consists of about 2000 houses, principally inhabited by Hindoos. Long. 69° 21′ E., lat. 22° 22′ N.

BATECUMBE, or BADECOMBE (William), an eminent mathematician, supposed to have flourished about 1420, in the reign of Henry V. He studied at Oxford, where he applied himself to natural philosophy, but chiefly to the mathematics, in which he made a very great proficiency. His writings are: 1. Of the Formation and Use of the Concave Sphere. 2. Of the Solid Sphere. 3. Of the Use of the Astrolabe. 4. Philosophical Conclusions.

BATEMAN (William), bishop of Norwich in the fourteenth century, was born at Norwich. In 1328 he was collated to the archdeaconry of that see: soon after, he went to Rome, where he so distinguished himself that he was promoted by the pope to the place of auditor of the palace. He was likewise advanced by him to the deanery of Lincoln; and sent twice as nuncio to endeavour to procure a peace between Edward III. and the king of France. In 1343 he appointed him bishop of Norwich, and consecrated him with his own hands. In 1347 bishop Bateman founded Trinity-hall in Cambridge, for the study of the civil and canon laws; and another hall dedicated to the Annunciation of the Virgin Mary, for the study of philosophy and divinity. He was often employed by the king and parliament in affairs of the highest importance. In 1354 he was, by order of parliament, despatched to the court of Rome, with Henry duke of Lancaster, and others, to treat, in the pope's presence, of a peace. This journey proved fatal to him; for he died at Avignon, where the pope resided, in 1354-5, and was buried with great solemnity in the cathedral church of that city.

BATENITES, a sect of apostates from Mahommedanism dispersed through the East, who fell into the same abominable practices with the Ismaelians and Karmatians. The word properly signifies esoteric, or people of inward or hidden light; they are also called Batenians.

BATES (William), D.D. an eminent nonconformist divine, born in November 1625, was admitted of Emanuel college, Cambridge, and thence removed to King's college in 1644. He was one of the commissioners, at the conference in the Savoy, for reviewing the Liturgy, and was concerned in drawing up the exceptions against the Common Prayer; however, soon after the Restoration, he was appointed chaplain to king Charles II., and became minister of St. Dunstan's in the west, but was deprived of that benefice for nonconformity. He bore a very high character; and was honored with the friendship of the lord keeper Bridgman, the lord chancellor Finch, the earl of Nottingham, and archbishop Tillotson. At the Restoration he was offered the deanery of Litchfield, which he refused. He published Select Lives of illustrious and pious Persons, in Latin. His works, except his Select Lives, have been printed in one volume in folio. He died July 14th, 1699. Dr. Bates was well acquainted not only with theology, but with poetry and the belles lettres; his style has been much and justly praised for its elegance; and has obtained for him the appellation of the silver-tongued Bates.

BATH, one of the most elegant cities in the kingdom, and a bishop's see; is situated in a delightful vale, and on the acclivity of a hill, facing the south and south-east, in the north-east extremity of Somersetshire, near the borders of Gloucester and Wilts. It is twelve miles from Bristol, nineteen from Wells, thirty-eight from Salisbury, forty-two from Gloucester, sixty from Oxford, and 105 from London, by way of Chippenham, or 107 through Devizes; surrounded by an amphitheatre of hills, of considerable elevation, it enjoys, by means of the river Avon, which is here of considerable magnitude, and passes through a great portion of the city, a direct communication with the Bristol channel: the Kennet and Avon canal, which here falls into the Avon, completes the inland communication, by water, from London.

This was very early a favorite station of the Romans, and called by them Aqua Solis, Fontes Calidi, Badinia, and Thermæ Achamannum. In 1755 the abbey-house or priory was taken down, and, about twenty feet below the surface, were discovered the remains of numerous Roman baths and sudatories, or sweating rooms, circular, semicircular, and oblong; paved with smooth flagstones, with appropriate apartments adjoining, beautifully ornamented with tesselated pavements, &c. Such were the frigidarium, or outer room, where the bathers undressed; the tepidarium, or warmer apartment, within, and the oleothesion, a small room containing oils, ointments, and perfumes; under these were vaults, ingeniously contrived to convey and retain the warmth required for the apartments above. In 444, when the Romans left this country, the city extended 12,000 feet in length, and 1150 in breadth; and was surrounded by a wall nine feet thick, and twenty feet high; some remains of which are now to be seen. The several gates have been taken down at different times (the west gate lately), to open and improve the approaches.

Various other vestiges of this people are in the possession of private individuals, but most of them are preserved and classed in a building erected for that purpose, by the corporation; amongst these are the remains and fragments of columns, cornices and capitals, of a magnificent temple, dedicated to Minerva, by Julius Agricola, on the present site of the great pump-room.

The coins which have been found, are chiefly those of Claudius, Vespasian, Trajan, Adrian, Antoninus Pius, Severus, Maximian, Carausius, and Constantine. Near the burial places of the soldiery, under Lansdown, quantities of urns, fibulæ, armillæ, and chains, have been dug up.

By the Saxons, Bath was known as Acemannes-ceaſtꝛn, the city of sick men; Acemannes-ðeni, and Leꝛbæðun. It was a burgh town of the kingdom of Wessex. In 775 it was seized by Offa, king of Mercia, who established here a college of secular canons. During the incursions of the Danes in the eighth century, Bath was almost destroyed; but, in the reign of Athelstan,

it once more recovered its grandeur. Coins were at this time struck, and the grants to the monastery here augmented. King Edgar was inaugurated here, and gave many privileges to the town. Many of the Danish monarchs resided here. In the early part of the Confessor's reign it was held by his consort Editha; but it reverted to the crown after her father's death, and was attached to the royal demesnes in the time of William the Conqueror. In the reign of William Rufus, during the insurrection of Odo, bishop of Bayeux, and the Norman lords who espoused the cause of the unfortunate Robert, it was plundered and burnt. The city owes its restoration to the liberality of John de Villula, a native of Tours, who purchased it of William II. for 500 marks, and obtained leave to remove the bishop's seat from Wells hither, uniting it to the monastery and church. He may indeed be considered as its second founder; all the public edifices were rebuilt by him; and, becoming bishop of the see in the reign of Henry I., he bestowed large endowments on the monastery. The monks, at this and subsequent periods, are said to have greatly encouraged manufactures of woollen cloth. Corruption, however, crept among them, along with the rest of the religious orders; and, in the reign of Henry VII., bishop King was compelled to introduce several regulations to correct their excesses. Bath is indebted to this prelate for her beautiful Abbey-church, &c., dedicated to St. Peter and St. Paul, built in the form of a cross, and considered to be one of the finest specimens extant of the pure Gothic architecture. It was begun by him in 1495, and finished in 1532. The dimensions of the windows are nearly uniform; they are large and beautifully formed: from the centre of the cross rises a tower 162 feet high, crowned with light open battlements. The body of the abbey is 210 feet long from east to west, and 126 from north to south; and the breadth of the body and aisles is seventy-two feet. The principal entrance at the west is through a fine arched doorway, and the attention of visitors is forcibly arrested by the excellent proportion and beautiful symmetry of this noble pile. In the interior is a handsome altar-tomb to the memory of bishop Montague. The vestry contains a small library, founded by bishop Lake. Bath has four parishes, each of which has its church. The abbey church is in the parish of St. Peter and St. Paul; the names of the three others are St. James's, a freestone building, erected in 1768, at the west end of which is a square tower, containing eight bells: St. Michael's, which was begun in 1734, has a fine dome, and is of the Doric order: Walcot church is dedicated to St. Swithin, and was rebuilt in 1780; this parish has a church entirely devoted to the accommodation of the lower orders, and contains four chapels of ease. In the reign of Elizabeth, the several parishes of Bath were consolidated into one rectory.

Here are also two reading-schools, many public libraries, and literary and philosophical institutions, the West of England Agricultural Society, &c.

Nor is Bath deficient in charitable establishments. Here is a great hospital and infirmary, capable of receiving 150 patients, who have advice and the use of the waters gratis; Bellot's hospital, and the Black alms; the Stranger's Friend Society; the Eye Infirmary, and the Puerperal, or Child-bed Society. The free Grammar-school, and Blue-coat school, are also well-conducted establishments. The places of divine worship for dissenters are numerous; that belonging to the Roman Catholics was formerly the theatre.

By the census returned to parliament in 1021, Bath contained 5127 houses and 36,811 inhabitants; exclusive of the out-parishes of Bathwick, Bathhampton, Batheaston, and Bathford. The city was at one time governed by a steward; but, in 1590, queen Elizabeth granted it a charter, declaring it a city, sole in itself, and vesting the government in a mayor, recorder, ten aldermen, and twenty-four common-council; from the body of aldermen the mayor is elected, and from the council are chosen the chamberlain, two bailiffs, and two constables, annually. It sends two members to parliament, who are elected by the corporation. The see of Bath and Wells comprehends the whole county of Somerset, except a few churches in Bristol, and contains 388 parishes, and 503 churches and chapels. Sixty of the parishes are impropriate. The bishop's palace is at Wells. The vicarage of the abbey is included in the rectory of Bath, and Walcot is a rectory. Bath races are held in September, on Lansdown, one of the highest hills near the city, about three miles in extent. On this down is also held an annual fair, on the 10th of August, for cheese, cattle, horses, and all kinds of merchandise, and a fair is also held in Holloway, on the other side of the city, May 14th; two other fairs are held in the town.

By far the largest and finest part of this beautiful city is without the walls, particularly Queen Square, in the midst of which is a garden with gravel walks, and having an obelisk in the centre. Another principal ornament of this part of the town is the King's Circus, with three openings at equal distances, leading into as many streets. The fronts of the houses are adorned with three rows of columns, in pairs of the Doric, Ionic, and Corinthian orders, standing over each other, and the frieze is embellished with sculpture. In the centre is a large covered reservoir of water, filled from springs rising in the adjacent hills, and serving for the supply of the neighbourhood.

The Royal Cresent is another striking object: the whole extensive front is of an elliptical form, consisting of thirty-one noble stone houses, uniformly built, with rustic basements, surmounted with columns of the Ionic order. It stands on an eminence, with an open and gentle declivity or lawn of twenty acres before it, down to the Avon, commanding delightful and uninterrupted prospects of the city, the vale below, and the river as it meanders towards Bristol; as well as of the opposite hills, and numerous villas, hamlets, and roads, which intersect and adorn it. Behind this crescent rise St. James's Square, Lansdown Crescent, Somerset Place, Camden Place, Portland Place, Catherine Place, Mount

Zion, a large extent of buildings on the summit of Beacon Hill; Cavendish Crescent and Place, Lansdown Grove, Lansdown Place, and Belle Vue. Besides these are Belvidere, Belmont, and Paragon Buildings, Marlborough Buildings, Burlington Place, and many other intervening streets and buildings. Nothing indeed can be more picturesque than the appearance of this part of the town.

Across the Avon, on the eastern side of the city, stands Pulteney Bridge, an elegant structure, of one arch, covered on each side with shops, and leading immediately from High Street, in the centre of the city, to Bathwick, where several elegant new erections have lately arisen. Laura Place, which is a square, built in the form of a lozenge, is peculiarly beautiful; and passing through the centre of this place diagonally, in a direct line from the bridge, is Great Pulteney Street, of considerable length, uniformly built, and lighted with gas. At the distant extremity of this street, in front, is Sydney Gardens, or Vauxhall, which range and expand up the side of Claverton Hill, and are very tastefully laid out. Here also runs the Kennet and Avon canal, ornamented with two cast-iron bridges in the Chinese style. At the top of the hill is an extensive plantation of firs. Around Sydney Gardens extends Sydney Place, an admirable specimen of architecture, forming an area, of which the gardens are the centre. In one of the wings of this place her late majesty, queen Charlotte, resided during her illness in 1817; and near it stands the elegant new parish church of Bathwick, built in the modern gothic style, and dedicated to St. Mary.

In the south-east part of the town is Orange Grove, a spacious area, planted with elms, and having an obelisk in its centre; adjoining to this are the walks where the Old Assembly Rooms are situated, and near to them are the North and South Parades. These are two elegant rows of houses, each 580 feet long, elevated on arches, and uniformly built, with paved terraces in front, fifty-two feet wide: whence are extensive and enchanting views of Prior Park, the magnificent seat of the late Ralph Allen, esq. Beechen Cliff, with its hanging woods, and Claverton Hill, richly diversified with villas and enclosures, and crowned with an ornamental castellated structure, which is surrounded with a plantation of firs, to a considerable extent. In the gardens below the South Parade, on the banks of the Avon, is now building an elegant new square, to be called Kingston Square, which, with the intended new streets, and a spacious esplanade next the water, will occupy the whole space of ground between the city and the river on that side. On the lower side of the town are many ranges of building, which, in most other places, would be deemed fine; among these are St. James's Parade, and Westgate Buildings, and adjacent to Kingsmead Square are New King Street, Green-Park Place, east and west; forming two sides of a triangle, the base or hypothenuse of which opens to the river, and Brunswick Terrace, and Kingsmead Terrace, pleasantly overlooking the meadows, and commanding views of the surrounding country.

On the north-eastern extremity of the town, at the entrance from the London Road, are many new ranges of magnificent buildings, with paved terraces, called Kensington, Piccadilly, Grosvenor Place, and Walcot Terrace.

The amusements of Bath are under the superintendance of two masters of the ceremonies, who are elected to that office by the subscribers to the assemblies, balls, &c., one of whom presides at the Upper Rooms, and the other at the Lower Rooms. Besides these, there is a third appointed to preside at the city assemblies at the Town Hall. The lodging-houses are numerous and commodious, and adapted to all ranks who may be induced to seek benefit from these salutary waters. Sedan-chairs are established here, the fares of which are settled by the mayor and justices; and here are also hackney-coaches and chariots, regulated as in London. Besides the Assembly Rooms and Pump Room, which are the usual promenades for persons of fashion, in wet or unfavorable weather; and the Riding Schools, which are the resort of equestrians on similar occasions; the neighbourhood of Bath abounds with beautiful walks and rides, and particularly Claverton Down, and Lansdown for the latter, affording the most salubrious air, and the most extensive prospects.

The old bridge over the Avon is a handsome structure, with stone balustrades. The intercourse between Bath and Bristol is very great, and besides carriages for the conveyance of goods, and private carriages of every description, there are not less than forty stage-coaches, that regularly pass forward and backward between the two cities. The whole city of Bath is amply supplied with the most excellent spring-water, brought from the neighbouring hills, and distributed to every house by means of leaden-pipes.

The Guildhall, situate on the east side of High Street, is worthy of such a city. Besides the Vestibule and the Public Hall, for the city sessions, court of record, justices' meetings, court of conscience, and other public business, is a record-room, the town-clerk's and other offices, and above stairs is a noble banqueting and ball-room, with a music-gallery, tea-room, drawing-room, &c. Behind this elegant structure is the market-place, which is exceedingly commodious, spacious, well paved, and under cover. The markets are held daily for all kinds of provision; and in point of supply and regulation are excelled by none in England. The principal days for butchers' meat, are on Wednesday and Saturday; and for fish, Monday, Wednesday, and Friday. The city prison is a handsome edifice, built of freestone, near the river in Bathwick.

After this general outline of the place, the several public baths next claim attention—these are, the King's, the Queen's, the Cross, the Hot, and the Corporation baths, which are the property and under the superintendence of the corporation; besides which are the Kingston, or Abbey baths, now the property of lord Manvers, which are commodiously fitted up, and where invalids are accommodated at any hour of the day or night. The taste of the waters is pleasant, impregnated with a vitriolic principle, which yields, upon evaporation, a small portion of neutral salt, with a calcareous earth and iron. They prove highly serviceable in bilious com-

plaints, as well as in nervous, paralytic, rheumatic, and gouty disorders. The King's bath is a large basin of sixty-five feet by forty, and contains rather more than 346 tons of water, when filled to its usual height. A brass hand-rail, of an octagonal form, encloses the centre: under it is a large reservoir, into which the main spring rises with great force, and from whence the water is conveyed, in its greatest purity, by means of pipes, to the pumps above, for drinking, as well as distributed with more equable heat throughout the bath, in which the main spring has its source; the sides of the bath are surrounded by a handsome colonnade of the Doric order, to shelter the bathers from the inclemency of the weather. Two commodious rooms are connected with this bath, fitted up with pumps and pipes to direct the hot water to any particular part of the body. The Queen's bath, which is attached to the King's, and opens into it, forms a square of twenty-five feet, and is furnished with similar conveniences; its temperature is somewhat lower. The Cross bath received its appellation from a cross erected in its centre by the earl of Melfort, in the time of James II. which is now removed. It is situate at the western extremity of Bath-street, about 150 yards from the two former, is of a triangular form, and has a small neat pump-room attached to it. Fahrenheit's thermometer rises in it to between 93 and 94.

The Hot bath stands about forty yards south-west of the King's, and is so called from the superior heat of its waters, which approaches to 117 of Fahrenheit. This structure, which is about fifty-six feet square, was built under the direction of John Wood, Esq. The usual time of bathing in the King's and Cross baths is between six and ten in the morning, after which time the water is discharged, and the springs afford a fresh supply of water for the next day. The seasons for bathing are the spring and fall.

Dr. Higgens has proved that a Winchester gallon of Bath water contains.

	oz.	dwt.	gr.
Calcareous earth combined with vitriolic acid in the form of selenite	0	0	$319\frac{1}{10}$
Calcareous earth combined with acidulous gas	0	0	$22\frac{8}{10}$
Marine salt of magnesia . . .	0	0	$22\frac{1}{10}$
Sea salt	0	1	$14\frac{4}{10}$
Iron combined with acidulous gas	0	0	$0\frac{1}{11}$
Acidulous gas, besides that which is contained in the above earth and iron	12	0	0
Atmospheric air	2	0	0

Dr. Monro gives the highest degree of heat attributed to them by

		Dr. Howard.	Dr. Charlton.	Dr. Lucas.	
From the pump of the	King's bath	113	116	119	Of Fahrenheit's thermometer;
	Hot bath . .	115	116	119	
	Cross bath .	108	110	114	

nd states that on evaporation, a gallon has been ound to contain of iron $\frac{3}{37}$ or $\frac{3}{38}$ parts of a grain; alcareous earth $22\frac{1}{2}$ grains, selenite $31\frac{1}{2}$ grains, lauber's salt $25\frac{3}{4}$ grains, sea salt $51\frac{1}{4}$ grains, hich were mixed with an oily matter, but not ore so than is common to all waters. From is it appears that the Bath waters are acidulous alybeates, in which iron and earth are kept spended by means of aerial acid; and that they e impregnated with a small portion of selenite, a salt, and muriated magnesia. They were r a long time esteemed sulphureous; but they early are not, for they do not affect the color silver or metallic solutions, nor produce any ier effect of water impregnated with sulphur. ere is some probability that azotic gas is an ive ingredient in them, but this has not been perly ascertained. Dr. Gibbes has lately led to their impregnations the silicious earth. t their contents have never been sufficiently estigated to account for all their effects. They erate powerfully by urine, and promote perration; if drank quickly and in large draughts y purge, but if taken slowly and in small ntities have an opposite effect. These waters adapted to atonic gout, to visceral obstrucis, nephritic complaints, dyspepsia, and to ak and exhausted constitutions; they relieve ernally in all the complaints for which the e stimulant power of the balneum is emyed. To the young and plethoric they are quently injurious; and unless some evacuations are premised, they often disagree with the patient, occasioning headache, heat in the hands, drowsiness, and giddiness.

The other public buildings in Bath are the upper and lower assembly rooms. The former, in the immediate vicinity of the circus, was finished in 1791, at the expense of £20,000; the ball room is 105 feet long, forty-three wide, and twenty-two high; one of the card rooms is an octagon, forty-eight feet in diameter, the other is seventy feet by twenty-seven; these, with the tea and coffee rooms, library, billiard room, and other appropriate apartments, form the most superb suite of rooms dedicated to pleasure, in the kingdom. The lower assembly rooms, near the parades, are also very elegantly fitted up, and both are appropriated chiefly to public meetings, promenades, balls, concerts, cards, and other amusements, during the winter and spring seasons. The pump room presents unrivalled attractions; it was built in 1797, is eighty-five feet long, forty-six wide, and thirty-four high; the interior is adorned with columns of the Corinthian order, crowned with a rich entablature. In a recess at the west end is a music gallery, and at the other end is a marble statue of Beau Nash; here the company promenade and drink the waters from eight or nine till three, attended by an excellent band of music. The theatre, on the south side of Beaufort-square, was opened in 1805, and in point of size, elegance of structure, and magnificence of decoration, is superior to

any provincial theatre. The company of performers have long been esteemed the best out of the metropolis.

Bath, a town of Berkely county, Virginia. It is situated at the foot of a small mountain, known by the name of the Warm Spring mountain. Contiguous are springs much celebrated. The country round is agreeably variegated with hills, and the soil rich and well cultivated. It is thirty-five miles from Winchester, twenty-five from Martinsburg, and 269 from Philadelphia.

Bath, a large mountainous county of Virginia, sixty miles in length, and fifty in breadth. It is bounded on the east by Augusta, on the west by Green-brier county, on the north by Pendleton, and on the south by Botetourt. In this county are two springs remarkable for their medicinal quality. They are called the warm and hot spring, and rise near the foot of Jackson's mountain, but more generally known by the name of the Warm-spring-Mountain. The hot spring, so called from its possessing a greater degree of heat than the warm spring, has frequently been so hot as to have boiled an egg. Some believe its heat to be now diminished. The stream which issues from it is small. A fountain of common water, which rises near its margin, gives it a striking appearance. The warm spring rises about six miles from the former, and issues with a bold stream sufficient to turn a grist mill, and to keep the water of its basin, which is nearly 100 feet in circumference, at the vital warmth. The water is strongest in the hottest weather, which occasions their being visited in the months of July and August. They remove rheumatisms and various other complaints. It rains here four or five days every week.

Bath, a town of the United States, New York, in the county of Steuben, handsomely situated on the east side of the river Conhocton. It contained in 1813, when its trade and population were rapidly increasing, fifty houses and stores, besides the country buildings. The Conhocton is here seventy-five feet wide, and is navigable for boats to the Tioga. It is forty-two miles south-east from Williamsburgh, and 200 north from Philadelphia.

Bath, a small town of Hyde county, North Carolina; situated near a bay which sets north from Tar river, eleven miles east by south of Washington, and sixty-one south by west of Edenton.

Bath, a village in the island of Jamaica, so named from a famous hot spring in its vicinity. The water is sulphureous, and too hot to admit a hand being held in it.

Bath, in Jewish antiquity. Some distinguish five kinds of Hebrew measures so called, viz. the greater bath containing eighty pounds of water, or, according to Josephus, 1440 Roman ounces; the second bath containing 100 ounces; the third, 66⅔ ounces; the fourth containing 25 ounces; and the fifth, 6⅔ ounces of water. Some have estimated the sacred bath at half as much again as the common bath; but there is no sufficient reason for this distinction. The word, in Hebrew, signifies literally a daughter. See Bath-kol.

Bath, in metallurgy, is used to signify the fusion of metallic matter in certain operations. In refining or cupelling, for example, the metals are said to be in bath when they are melted; thus, bath of gold signifies melted antimony when gold is purified in it; and bath of the king is the title given to melted antimony by alchemists, who style gold the king of metals, because gold only can resist the action of antimony.

Bath, Knights of the, a military order of England, concerning the origin of which antiquaries differ. The most probable account is that the ancient Franks and inhabitants of Lower Germany, with whom it is highly probable the Saxons, who invaded England, had the same descent, introduced it, with other customs, upon their settling here. These ancient Franks, when they conferred knighthood, practised bathing amongst other rites, before they performed their vigils; and they were hence denominated Knights of the Bath. Henry IV., on the day of his coronation in the tower of London, conferred the degree upon the forty-six esquires, who had watched all the night before, and had bathed themselves. From that time it was customary with our kings to confer this dignity preceding their coronations, the coronations of their queens, the births and marriages of the royal issue, &c.; several knights of the bath were made at the coronation of king Charles II. in 1661; after which the order was neglected until 1725, when George I. revived it, and ordered a book of statutes for the government of it. By this the number of knights is fixed to thirty-eight, viz. the sovereign, and thirty-seven knights-companions. The apparel of a knight of the bath is a red fur coat, lined and edged with white, girded about with a white girdle, without any ornament thereon; the mantle is of the same color and lining, made fast about the neck with a lace of white silk, having a pair of gloves tyed therein, with tassels of silk and gold at the end; which mantles are adorned upon the left shoulders with the ensign of the order, being three imperial crowns, or, surrounded with the ancient motto of this knighthood, Tria juncta in uno, wrought upon a circle gules, with a glory or rays issuing from the centre, and under it the lace of white silk heretofore worn by the knights of the bath. They have red breeches and stockings, and have white hats, with a plume of white feathers in them. The king allowed the chapel of king Henry VII. to be the chapel of the order; and ordered that each knight's banner, with plates of his arms and styles, should be placed over their several stalls, in like manner as the knights of the garter's in St. George's chapel in the castle of Windsor; and he allowed them supporters to their arms. The dean of Westminster for the time being is dean of the order; the other officers are, bath king at arms, a genealogist, registrar, secretary, gentleman usher, and messenger. These several officers have their particular duties assigned them by the statutes. The office of genealogist is a distinct office of record, for the pedigrees of the knights of the order and their esquires, which are entered in a regular series, from 1399, the period at which the order was originally instituted, to the present time.

An esquire of the order is allowed to hunt and fish in the king's royalty, and is exempt not only from serving the office of high sheriff, but any

parochial office. To prevent any abuses in the claiming these privileges and exemptions, the following notification was inserted in the gazette in 1803, previously to the installation of twenty-two knights, attended by their esquires, sixty-six in number.

'It is hereby notified, that no exemplificate will be issued to any esquire, from his royal highness the duke of York, after the ensuing installation, until it shall be certified to his royal highness, by the genealogist, that the pedigree and coat armour of the several knights and their respective esquires have been entered in the genealogical books of the order, in obedience to the said statutes. Given at the Horse Guards, this 13th day of May 1803; FREDERICK, acting as great master of the said most honorable military order of the bath.'

We need hardly add, that, both in the number of knights and the brilliancy of its appearance, this order maintained its full splendor at the coronation of the fourth sovereign of the House of Brunswick.

BATH METAL is a preparation of copper with zinc, which gives a more beautiful color than the calamine used in the preparation of the common brass. See PRINCE'S METAL.

BATHS, in ancient architecture, buildings of various descriptions erected for the purpose of bathing. Baths made a part of the ancient gymnasia, though they were frequented more for the sake of pleasure than health. The most magnificent among the Romans, were those of Titus, Paulus Æmilius, and Dioclesian, of which there are some ruins still remaining. It is said that at Rome there were 856 public baths. Fabricius adds, that the excessive luxury of the Romans appeared in nothing more visibly than in their baths. Seneca complains, that the baths of plebeians were filled from silver pumps; and that the freedmen trod on gems. Statius has pleasantly described one in his poem upon the baths of Claudius Etruscus, the steward of the emperor Claudius.

Nil ibi plebeium; nusquam Temesæa videbis
Æra, sed argento felix propellitur unda,
Argentoque cadit, labrisque nitentibus instat,
Delicias mirata suas, et abire recusat.

Macrobius tells us of one Sergius Oratus, a voluptuary, who had pendent baths hanging in the air. According to Dion, Mæcenas was the first who made a bath at Rome; yet there are instances of public baths prior to this; but they were of cold water, small, and poorly decorated. Agrippa, in his ædilate, built a number of baths, where the citizens might be accommodated, either with hot or cold water, gratis. After his example, Nero, Vespasian, Titus, Domitian, Severus, Gordian, Aurelian, Maximian, Dioclesian, and most of the emperors who studied to gain the affections of the people, erected baths adorned with the richest marble, and wrought according to the rules of the most delicate architecture. The rich had baths at home, and frequently very magnificent ones, especially after the time that the practice of pillaging provinces had begun; before they only used them on extraordinary occasions. The great men, and even emperors themselves, sometimes bathed in public with the rest of the people. Alexander Severus was the first who allowed the public baths to be opened in the night during the heats of summer.

Dioclesian is said to have erected baths which would accommodate 1800 bathers. According to Alberti, in the eighth book of his architecture, the extent of an ancient Roman bathing establishment was at least 100,000 square feet. Now, if we consider the great extent of their ruins, the number of their apartments, courts, and halls, which were enclosed and served for recreation and exercise, Alberti does not err on the side of excess. They were generally of a square or oblong form, and surrounded with walls; this space had three enclosures, each of which surrounded the building, as it were, one placed within the other. The first, or what surrounded the exterior, contained the halls in which the philosophers gave their instructions, and those which were used by the athletæ. The second division contained open places, planted with trees, for the exercise of the youths. In the third division, situated in the middle of the building, were the baths, surrounded with porticoes and open courts. Sometimes the entire building was enclosed by a park, like that of Alexander Severus, which contributed greatly to the embellishment of the whole structure.

They were careful to place their public baths in a warm situation; to protect them from the north winds, and expose them to the south or south-west as much as possible, that they might receive heat from the sun during the hours in which the bath was generally used. In the baths of individuals, especially in towns or cities, they sometimes made a distinction between summer and winter baths. In the first, they placed the cold bath towards the north, and in the winter baths, towards the south.

The Greek baths were usually annexed to palestræ or gymnasia, of which they were considered as a part. These baths consisted of seven different apartments, usually separated from each other, and intermixed with other buildings belonging to the other sorts of exercises. These were, first, the cold bath, frigida lavatio; secondly, the olæothesium, or room where they were anointed with oil; thirdly, the frigidarium, or cooling room; fourthly, the propnigeum, or entrance of the hypocaustum, or stove; fifthly, the vaulted room, for sweating in, or vapor bath, called concamerata sudatio, or tepidarium; sixthly, the laconicum, or dry stove; seventhly, the hot bath, called callida lavatio. The baths separate from the palestræ appear to have been usually double, one for men, the other for women; but so near, that the same furnace heated both. The middle part was possessed by a large basin that received water by several pipes, and was surrounded by a balustrade, behind which there was an area for the reception of those who waited to use the bath. They were vaulted over, and only received light from the top. In the Roman baths, the first part that appeared, was a large basin, called κολυμβηθρα in Greek, and natatio or piscina in Latin. In the middle was the hypocaustum, which had a row of four apartments on each side, called balnearia; these were the stove, the

bath, cold bath, and tepidarium. The two stoves, called laconicum and tepidarium, were circular and joined together. Their floor was hollow and suspended, in order to receive the heat of a large furnace, which was communicated to the stoves through the vacuities of their floor. This furnace also heated another room called vasarium, in which were three large brazen vessels called millaria, respectively containing hot, warm, and cold water; which were so disposed, that the water might be made to pass by syphons and pipes out of one or other of them into the bath, in order to adjust its temperature. The description is given by Vitruvius.

The baths or thermæ of the Romans, as well as the gymnasia of the Greeks, were sumptuously decorated with bassi rilievi, statues and paintings; the basins were of marble, the pavements of mosaic, and the cupolas splendidly decorated. The remains of those at Rome prove, more than any other of their architectural ruins, the love of magnificence and luxury which characterised the ancient Romans; and as the public baths were intended to collect together a great number of people, they were divided into so many various apartments, which afforded their architects an ample field for the display of taste and splendor of ornament. Agrippa ornamented the apartments of his bath with encaustic painting, and covered the walls of the caldarium with slabs of marble, in which were inserted small paintings. In the earlier period of the Roman history, before the arts and luxuries of Greece were much known to, or practised by, the Romans, their baths were small and simple, only calculated for the mere act of bathing, like that of Scipio Africanus, described by Seneca. While the ruins of the baths of Titus, Caracalla, Nero, Dioclesian, and Antoninus, are the most splendid examples of these kinds of buildings, and anciently contained the finest statues that were brought from Greece. The Laocoon was found in the baths of Titus, and the Farnese Hercules in those of Caracalla.

In Italy and the east, baths on a large scale are still constantly seen. Denon, in his Egypt, describes the hot vapor baths of the countries through which he passed; and in St. Petersburgh, at Florence, and in several European capitals, these are coming much into use.

BATHE (Henry De), a learned knight and justiciary of the thirteenth century, born at Bathe House, in Devonshire, the family seat. In 1238 he was appointed justice of the Common Pleas; and within the succeeding twelve years, an itinerant justice for eight different counties. In 1251 he lost the royal favor, and being accused of accepting bribes, perverting justice, &c. and, above all, of seditiously alienating the affections of his majesty's subjects, Henry III. became so irritated against him, that De Bathe, either from his innocence, or popularity, being acquitted of the crimes laid to his charge, Henry is said to have declared from the throne, that whosoever should kill Henry De Bathe, should have a royal pardon for him and his heirs!—Not long after, however, by the mediation of friends, and the payment of 2000 marks to the king, he was restored to favor, and all his former offices, along with that of justice of the king's bench, which he enjoyed till his death in 1261.

BATHING.

BATHE', BATH', BATH'ING. } Ang.-Sax. *bathian*, Dut. and Ger. *baden*, Swed. *bada*. To wet, to immerse in water or other liquid. A bath, the receptacle of the fluid, in which subjects are covered or immersed, is either hot or cold, either of art or nature. It is also a technical term in chemistry.

The sleer of himself yet saw I there,
His herte-blood hath *bathed* all his here.
Chaucer. The Knightes Tale.

Quod he,
Brenne hire right in a *bath* with flames rede,
And as he bade right so was don the dede,
For in a *bathe* they gonne hire fast shetten,
And night and day gret fire they under batten.
Id. Second Nonnes Tale.

And whilst he slept she over him would spred
Her mantle, colour'd like the starry skyes,
And her soft arme lay underneath his hed,
And with ambrosiall kisses *bathe* his eyes. *Spenser.*

Except they meant to *bathe* in reeking wounds,
I cannot tell. *Shakspeare. Macbeth.*

Sleep,
The birth of each day's life, sore labour's *bath*,
Balm of hurt minds. *Id.*

Thereupon, belike, this humour of melancholy is called balneum diaboli, the devil's *bath*; the devil spying his opportunity of such humours, drives them many times to despair, fury, rage, &c. mingling himself among these humours.
Burton's Anatomy of Melancholy.

But lo! the day is ended with my song,
And sporting *bathes* with that fair ocean maid.
Fletcher. Purple Island.

Others on silver lakes and rivers *bath'd*
Their downy breast; the swan, with arched neck,
Between her white wings mantling proudly, rows
Her state with oary feet. *Milton.*

Mars could in mutual blood the centaurs *bathe*,
And Jove himself give way to Cynthia's wrath.
Dryden.

She rear'd her arm, and with her sceptre struck
The yawning cliff from its disparted height;
Adown the mount the gushing torrents ran,
And cheer'd the vallies; there the heav'nly mother
Bath'd, mighty king, thy tender limbs.
Prior. First Hymn of Callim.

Queen lilies: and ye painted populace,
Who dwell in fields, and lead ambrosial lives;
In morn and ev'ning dew, your beauties *bathe*,
And drink the sun. *Young.*

Constantine survived that solemn festival about ten months; and, at the mature age of sixty-four, after a short illness, he ended his memorable life at the palace of Aquyrion, in the suburbs of Nicomedia, whither he had retired for the benefit of the air, and with the hope of recruiting his exhausted strength by the use of the warm *bath*. *Gibbon.*

Bathing, for medicinal or salutary purposes, demands consideration under several distinct heads; in the first place, as the temperature of the bath may be concerned: thus we have cold, hot, and tepid or temperate baths. Secondly, as the mode may vary in the application of the media employed; for immersing the body, pouring water over the whole, or part of its surface, the use of sponges or cloths to the naked body, immersing the body in or exposing it to vapor, and letting water fall from a greater or less height upon the head and shoulders, are, in fact, all varieties of bathing. We have, thirdly, also to consider the question of specific qualities in the agencies employed; some substances, as we shall see in the sequel, being used for the impregnation of baths which are supposed to operate with positive powers of a medicinal kind. And, lastly, it may be remarked, that the material itself varies beyond the circumstance of temperature or peculiar quality; for besides water and vapor, air and earth have been brought into requisition as subservient to the purposes for which the practice of bathing was instituted.

The term Cold Bath is generally made to include the whole range of temperature, from a little above thirty-two to eighty degrees of Fahrenheit's thermometer; by sudden immersion in water, of this low temperature, the whole surface becomes contracted, the bulbs of the hair, as a modern author states, are made conspicuous, and the skin, resembling that of a newly picked goose, has been styled cutis anserina. The debility and tremor are considerable, a sense of weight is felt in the head, the respiration is quick and laborious. These appearances are followed by a very different series. A glow soon returns to the surface, the weight in the head is almost instantaneously relieved, and every function appears to be carried on with increased activity. If a person stays for a longer period in the bath, the glow will be slighter and will soon disappear, while every previous symptom of debility will return and continue.

If this immersion be repeated at due intervals, and the stay in the bath be not improperly continued, the general health and spirits are greatly improved, the different necessary evacuations properly carried on and supported, and the body and mind appear to act with increased vigor.

The explanation of these phenomena, says the author from whom we extract, is not difficult: the cold, by its sedative powers, represses the circulation in the extreme vessels, and the fluids are accumulated in the larger arteries and veins: and he goes on to state, that re-action is set up to produce the subsequent glow; this after-glow, however, and indeed the immediate impression of the cold water, are probably more complicated operations than those persons imagine who readily receive the explication of the circumstances as referrible to a sort of mechanical action and re-action. The cold plunge seems to affect not merely by directing the blood inwardly upon the large blood-vessels and viscera, but there may be a constringing agency produced through the whole series of capillary vessels; and the consequent diminution of the capacity of these vessels, or of their diameter, must, as is well remarked by another writer on the subject, necessarily increase that part of the resistance to the blood's motion which is derived from its friction against the sides of the vessels, and must therefore tend materially to lessen its velocity. He might have added, that, upon this principle, the generation of cold, or rather the subduction of the sensation of heat is probably in a greater measure than would be the consequence of the mere cold immersion, had not this mode of applying cold some constringing as well as mere sedative power; this term sedative, we may here incidentally remark, has been employed by physiological and pathological writers with too much laxity of signification.

In considering the phenomena directly and indirectly produced by cold bathing, reference ought likewise to be had to the sensations; for it will be found that both the first and subsequent effects are very materially regulated, both as to their degree and duration, by the condition of the percipient power. That sensation has a great deal to do, both with the principle of its operation and the salutary or injurious effects of cold bathing, has been shown with a great deal of ingenuity by the late Dr. Currie, in his experiments on cold water as a febrifuge power; and that the glow which succeeds to the first sensation of cold, may be ascribed in a great measure to the increased sensibility of the nerves after a partial torpor, cannot be denied. At the same time it must be admitted, that there is not only a relative but an actual increase of heat on the surface of the body, during the re-action following the temporary torpor; and it is probable, we are told, the causes concerned in the production of animal heat are called up into a more vigorous exertion in a strong constitution, whenever they are required for the purposes of life; so that they at first supply the superficial parts of the body, during the immersion, with as much heat as is necessary to overcome the painful sensation of cold; and afterwards, by a continuation of the same action, occasion an actual elevation of temperature above the natural standard.

It is worthy of remark, that re-action, as it is called, or heat following exposure to cold water, sometimes occurs, even when there has been no prior depression of temperature. Dr. Currie found that during the affusion of a bucket of cold salt water on the heads and whole bodies of two healthy persons, no depression of temperature was observable; but, in a minute or two afterwards, although they remained without motion, the mercury rose two degrees; and in a third person, of feebler constitution, although the temperature remained equally unchanged during the affusion, it sunk in a minute after, half a degree. These effects seem to be almost entirely independent of any change in the state of the circulation, which must be rather retarded than accelerated, while the generation of heat is increased. It is true that the heart might be called into more powerful action at the same time that the pulsation of the wrist became feeble, from the permanent contraction of the

radial artery; but the action of the heart would still be exhibited by the carotids, undisguised by this modification; and the carotids have not been observed to beat more strongly in the cold bath than at other times, although Dr. Currie has remarked, that when the pulse could hardly be felt at the wrist, the heart pulsated with great steadiness and due force.

Much, it must be confessed, is wanting in the way of physiological experiment before we can satisfactorily explain the laws of temperature of the human body, or the vascular changes that are concomitant with, or perhaps in some measure the causes of, these changes; and indeed it is not easy to say precisely upon what principles cold bathing, when it proves a sanative or salutary process, operates the beneficial purpose: *a priori*, we should scarcely have supposed that a temporary suspension, to be followed by excitation, that excitation itself proving but transient, would have been attended with much benefit to the constitution; and yet we do see that much and unequivocal good occasionally, nay frequently, follows the temperate and judicious employment of the agent now under consideration. Much mischief is also the result of its indiscriminate or injudicious use, and we shall now proceed to point out in what cases and circumstances cold bathing is desirable or admissible; where it is contra-indicated; and in what mode it is best administered.

It has already been intimated that cold bathing may be used with advantage under certain modifications of febrile heat; it is, however, of the utmost importance to attend to certain precautions which its use demands, when employed as a febrifuge. Dr. Currie tells us that cold bathing or affusion, in fever, can only then be had recourse to with safety and good effect, when the heat of the body is steadily above the natural standard, when there is no sense of chilliness, and especially when there is no general nor profuse perspiration. If used during the cold stage of fever, even though the heat be higher than natural, it brings on interruption of respiration, a fluttering, weak, and extremely quick pulse, and certainly might be carried so far as to extinguish animation entirely. (See MEDICINE, article FEVER, &c).

In another affection, very opposite to fever, viz. tetanus, cold bathing has been used with decidedly beneficial effect; and, in this case, it may be remarked that the principle of its operation must be different; the shock given to the sensations, and the whole order of organic movements, being temporarily changed, having more seemingly to do with its healing influence than any circumstances abstractedly connected with change of temperature. The observation is as old as Hippocrates, that the remedy under remark is best adapted to these convulsive disorders when they are the result rather of general mobility of a morbid kind, than connected with local affection; *ανευ ελκεος* is the expression of the Coan sage, and we allude to it partly because it is confirmatory of what we are immediately to advance on the objectionable circumstances to cold bathing in other complaints and tendencies.

But it will not be requisite or proper in this article (which is intended rather for popular than for professional direction), to go through the various disorders in nosological order, for which the practice of cold bathing has been instituted; suffice it to say, that it has generally been used and recommended in those conditions of fibrous debility which are under the grade of actual disease, and in which those medicinal agencies are demanded which pass under the name of tonic. Such states are marked by irregularities in the displays of nervous power, by tremors, by more than natural sensibility to cold, by the easy excitation of profuse discharges from the skin, by head-aches, listlessness, and febricula, with lowness of spirits, irregular appetite, deficient digestion, and torpid bowels. Individuals, in this condition of the nervous and muscular powers, may be greatly benefited by the daily employment of cold water to the surface, in the manner immediately to be pointed out.

But it may be right first to dismiss the much agitated and very interesting question respecting the propriety of bathing or washing children; and this, perhaps, will be best done by extracting from a modern writer on consumption. 'Immersion in cold water,' says Dr. Reid, 'during the period of infancy, has been very generally recommended, and too frequently had recourse to in an indiscriminate manner, to preserve health and insure hardiness. The author has remarked several instances where sensible and sometimes serious injury has arisen from neglecting to observe the precautions necessary to regulate the employment of this important agent in very early years. In infancy, danger to the lungs from cold bathing has been stated to exist in a very inferior degree; and by the practice of dipping infants in cold water, susceptibility to the injurious impression of cold in succeeding years has been thought to be materially diminished. This principle, in the abstract, is undoubtedly correct; and, with the exception and precautions now to be mentioned, may be pursued with propriety and advantage. Two infants may be supposed of one family, with reverse constitutions; in the one, a general torpor, debility, and great susceptibility to the impression of cold shall prevail; in the other, comparative vigor, activity, and warmth. To pursue, without discrimination, the same course with respect to immersion in water with each of these children, would be obviously improper. That degree of cold which would refresh and invigorate the one, would confirm debility, and augment torpor, in the other. A bath which is not cold to the sensations must, in the first instance, at least, be resorted to for the weaker infant; and in neither case should immersion in cold water be practised when the external temperature of the body is inferior in degree to its general standard, when after immersion the body appears to be chilled, or when returning heat is attended with febrile languor, instead of the grateful and genial warmth characteristic of the appropriate action of exciting powers. If the practice of immersion be guided by a cautious observance of these particulars, it may be pursued with safety, and will be attended with success; but a total neglect of bathing were greatly preferable to the severe and

incautious manner in which infants are frequently exposed to these violent and rapid changes in temperature.'

We may further remark, that, both in the states of infancy and youth, cold bathing must be cautiously, and only under professional permission, employed, when the constitution is decidedly of a scrofulous cast; and more especially when, with that general condition of the organisation to which the term scrofula would be applied, tendencies manifest themselves of local or topical disorder. Under the somewhat mechanical notion of hardening the frame, as some inanimate bodies are hardened by being plunged into cold media, cold bathing has been employed, and persevered in, to a deleterious extent; and under the circumstances of consumptive disposition, or verging towards any internal or visceral disorder, the shock, and irregular impulses, and internal rushes, if we may so say, which the frequent plunges into cold water imply, instead of strengthening, irritate the feeble frame, and assist the constitutional bias towards structural and irremediable disorder. Dr. Beddoes presents an important and instructive example of this principle and practice, on the authority of the late Dr. Pulteney. 'T. C. was *rickety in his infancy*, and very weakly for several years after. In the winter of 1759 he had pleuretic symptoms; a rheumatic fever left him next summer afflicted with chronic rheumatism; he was advised to go into the cold bath; he did so; but on coming out again felt such an increased load, fainting, and anxiety, about the precordia, that he thought he should hardly recover the shock it gave him. Nevertheless he ventured in again a day or two afterwards, but experienced the former symptoms in an aggravated degree, and from this time dated the disorder that terminated his life.'

As mischievous mistakes have occasionally arisen in the practice of cold bathing, from too abstractly considering it a tonic or strengthening process, so much error has connected itself with the mode and circumstances of immersion. It has been too generally considered that to be fitted for immersion, the body should be cooled down nearer to the temperature of the bath, than after a little exercise it is made; and that if a person have hurried to the side of the water into which he is about to plunge, he ought to rest until part of the artificial heat he has produced from exercise, be dissipated in the surrounding air. This is an erroneous motion, which Dr. Currie was the first fully to refute and rectify; it is singular how it should have arisen, since our own feelings, as well as our observation on the instinct of animals, seem to direct to a different conclusion and practice. The opposite doctrine, too, was taught by the ancients. 'When we are fatigued or dried up by exercise (says Galen, as quoted by Dr. Young) the bath restores us to comfort, and defends us from fevers. A strong young man in the country will plunge into cold water at once, when heated, and be much refreshed by it. Animals also, wash themselves when they are hot, by a natural instinct, as they eat when they are hungry, and seek warmth when they are cold. In fevers, if we had sufficient powers of discrimination, we might probably sometimes derive material advantage from the use of the cold bath, without premising the hot; and some persons have been actually benefited by this remedy. But without a more intimate knowledge of diseases than we possess, we cannot generally venture on the practice; and least of all in hectic fevers, where there is not strength enough to bear the shock. A stout young man having a fever in warm weather, without visceral inflammation, would, bring on a salutary prespiration by bathing in cold water; and if he were in the habit of cold bathing, he might have recourse to it with more confidence; but for hectic, it is unsafe, especially where there is much emaciation; thus in a hot and dry summer, those who have travelled far, and are become thin and weak, have no need of being cooled, nor would it be safe for them to use the cold bath, without first going into the warm. For we seem to be hardened by the cold bath, like iron when heated first; and if we previously warm ourselves by exercise, the effect is the same.'

We have extracted these observations of Galen, because their practical inference is precisely the same, as that to which the good sense and philosophic acumen of Dr. Currie have brought us; and because they are strongly contrasted with the vulgar conceit, which, almost universally, and still too generally, prevails. It is well observed by the writer from whom we now borrow (see supplement to the Encyclopædia Britannica), that Dr. Currie's relation, of an adventure of his own, might almost be supposed to have been intended as a commentary on these remarks of Galen. 'On the first of September, 1778, two students of medicine at Edinburgh, set out on foot on a journey, a considerable part of which lay along one of the rivers of Scotland. They started by sun-rise, and proceeded with alacrity in the cool of the morning. At the end of eight miles they breakfasted, rested for an hour, and then resumed their journey. The day grew warm as it advanced, and after a march of eight miles more, they arrived heated, but not fatigued, on the banks of the river above mentioned, about eleven in the forenoon. Urged by the fervor of the day, and tempted by the beauty of the stream, they stripped instantly and threw themselves into the river. The utmost refreshment followed, and when they retired to a neighbouring inn, this was succeeded by a disposition to sleep, which was indulged. In the afternoon they proceeded, and travelling sixteen miles further, at a single stretch, arrived at the inn where they were to sleep a little after sunset. The afternoon had been warm, and they perspired profusely; but the evening was temperate and rather cool. They had travelled for some miles slowly, and arrived at the end of their journey, stiffened and wearied with exercise. The refreshment which they had experienced in the morning from bathing induced, however, one of them to repeat the experiment, and he went perfectly cool into the same river, expecting to relax his limbs in the water, and afterwards to enjoy profound sleep. The consequences were very different. The Tweed, which was so refreshing in the morning, now felt extremely cold, and he left the water

hastily. No genial glow succeeded, but a feverish chill remained for some time, with a small frequent pulse, and flying pains over the body. Warm liquids, and frictions at length brought on considerable heat, and towards morning, perspiration and sleep followed. Next day, about noon, they proceeded on foot, but the traveller who had bathed was extremely feeble; and though they had to perform a journey of a single stage only, as some part of it was difficult and mountainous, he was obliged to take the assistance of a carriage, which overtook them on the road. It was several days before he recovered his usual vigor.'

It is generally known that the Russian goes reeking from a bath, heated almost to the highest pitch of endurance, and immediately, without staying to cool himself, rolls his naked body in snow: and the experiments made some time since by Fordyce and Blagden prove that a rapid transition from high heat to cold may, under some circumstances, be made with the utmost safety. So erroneous is the notion we are now combating, that the body requires to be cooled in order to render it fit for a chilling medium. Still, there are certain facts connected with the action of cold and heat on the living system, which prove that we must not take too precipitately, or in too unqualified a manner, the reverse rule for our guide through all circumstances. As an example, says a modern writer, of the injurious tendency of a precipitate application of cold when the body is heated, in a more than ordinary degree, the sufferings of the Macedonian conqueror, from plunging into the river Cydnus, have frequently been adduced. Dr. Currie, however, has endeavoured to prove, that the situation of Alexander, previously to bathing, was different from that more commonly imagined; and that his subsequent illness, as related by his historian, is referrible to circumstances exactly opposite to those to which they are generally attributed. From the length and difficulty of the march, it is natural to suppose that he must have been cooled as well as debilitated, by excessive perspiration and fatigue; and under such circumstances, immersion in the cold and rapid Cydnus was followed by the consequences which we should expect from the principles already laid down.

Other circumstances, however, have been arrayed as evidences against the propriety and safety of a sudden application of cold subsequently to violent heat. Many well attested instances are on record, of instantaneous death, or violent disorders, which have terminated fatally, following imprudent exposure to cold, while the body has been overheated; and in some of these, the application of the noxious cause has confessedly been made previously to the production of fatigue or coldness. It is by no means uncommon for violent inflammation of the stomach or lungs to be occasioned by large draughts of cold water, incautiously taken to abate thirst, consequent upon excessive heat; and the injurious effects of the external application of cold water, both to the whole surface, and merely to a part of the body, have been circumstantially related, in order to invalidate or qualify the inferences of Dr. Currie.

These apparently contradictory deductions, (says Reid), on this very interesting subject, may perhaps be in some measure reconciled by the following considerations:—

The state of the body, in relation to its susceptibility of being acted on by cold media, has more reference to the kind than degree of previously existing heat; or, more correctly speaking, although an equal quantity of heat may be present in the system, such heat may be abstracted with greater or less facility and safety, according to the mode in which it has been generated. The increase of temperature occasioned by what is termed an inflammatory action pervading the whole system, such as is sometimes observed in violent inflammation of the lungs; that attended with an extremely debilitated state of the vital power, as in instances of what has been termed improperly putrid fever; the heat consequent upon violent exercise, and that produced by communication from without, as in the example of hot baths, or exposures to other sources of great heat, while the body continues inactive; are all essentially different in their nature: and, although in each case the quantity may be equal, and the thermometer applied to any part of the body shall indicate the same temperature, yet from such temperature alone it would be improper to form a judgment of the expediency and safety of the sudden application of cold. In the author's recollection a case occurred, of violent inflammation of the whole thoracic viscera, which speedily terminated in death, almost immediately following a large draught of cold water, when the body had been heated from unusual exercise. The deceased was previously to the event a strong and healthy man, in the prime and vigor of life. In this case the injury appeared to arise, not from the sudden abstraction of heat, but from the precipitate interruption of those actions by which the increase of temperature had been generated. Had the same quantity of water equally cold been suddenly swallowed by a person oppressed and debilitated by febrile heat and irritation, these fatal consequences would not have succeeded, because in this latter case the cold fluid would have operated in deducting from the superfluous quantity of generated and oppressive heat, and the refreshing sensation excited in consequence would have stimulated the languid frame. The same principle likewise applies in the application of cold media, either partial or general, to the external surface. Dr. Beddoes relates the case of an obstinate eruptive affection being produced on the face, in consequence of the immersion of that part in cold water, when the subject of the affection was heated and thrown into perspiration by play. Had this immersion immediately succeeded to hot bathing, or been made during the existence of dry febrile heat, the injurious effects would not have resulted; for this reason, that the action of the cutaneous vessels would not in the latter cases have been injuriously interrupted, and thus indirectly stimulated into inordinate excitement.

The seeming contrarieties of speculation on the subject of temperature, may, perhaps, likewise, in some measure, have arisen from the very important circumstances of cooling applications

acting through successive moments, or by successive quantities. If a person in a heated state drink half a pint of cool liquid, that may not sensibly reduce him below the natural healthy state. But if he pour down double that quantity at once, the last half pint may be regarded as operating upon the system reduced by the first, and sinking into a dangerous chilliness. So immersion for a moment in a sunny river may strengthen and refresh, as many pedestrian travellers have experienced; whereas delay in the water would be attended with great hazard, on account of the continued operation of a heat-abstracting medium upon a system sufficiently reduced in its temperature and action by the first plunge. Whatever might have been the actual condition of Alexander, when he plunged into the Cydnus, the injurious effects of his bathing unquestionably originated from the sudden reduction of heat below the standard of health. 'Vixque ingressi subito horrore artus rigore ceperunt: pallor deinde suffusus est, et totum propemodum corpus vitalis calor reliquit.' In this case, perhaps, an exposure to cool air, or immersion in water of a superior temperature, but which would nevertheless have abstracted a certain degree of heat from the languid frame, would have displayed effects exactly contrary to what the historian here relates. In like manner, the Russian, who reeking from his vapor bagnio, immediately rolls in snow; or, who, after immersion in a bath which has been heated almost beyond endurance, instantaneously plunges into contiguous cold water, requires that the medium to which he is first exposed be extremely great, or the succeeding cold application would debilitate, and perhaps destroy. Upon this principle, likewise, the statement of Dr. Fordyce is explained, that a person passing from a violent degree of heat to much cold, will gradually return to his proper standard of temperature, while from a sudden change from heat to cold, when the heat has not been so high, diseases will often be generated.

To revert to the subject more especially under our present consideration, we may remark, that cold bathing will in general be found applicable to those conditions of nervous and muscular lassitude and weakness, in which, though the powers of the system are thus below their due grade, there is sufficient energy to insure a healthy re-action; while its use is objectionable and fearful, where local and especially visceral irritation of a vascular kind accompanies the general debility; and this condition of the frame, it is right to remark, is of more common occurrence than is sometimes suspected; the topical affection often being masked, as it were, or concealed under the systematic weakness; and the detection of that something which is thus preying upon the vitals requiring frequently the nicest tact, and most extended experience. It will have been remarked, that the two highest of the ancient authorities in medicine, speak of local and hectic circumstances as contra-indicating the propriety of cold immersion; and it will be recollected, that we gave a case in point, as substantiating the propriety of these cautions—cautions, however, which on the other hand, must not be conceived and acted upon with too much nicety, lest we lose sight altogether of radical weakness; and fear to stimulate and excite, where excitation may prove abundantly serviceable.

In regard to the mode and times of using the cold bath, the following directions, taken from Dr. Willich, may be worthy attention. '1st, Every cold bath applied to the whole body ought to be of short duration; all depends upon the first impression the cold makes on the skin and nerves, it being this impression which hardens us against the effects of rough and cold weather. 2d, The head should be always first wetted, either by immersion, by pouring water upon it, or the application of wet cloths, and then plunging over head into the bath. 3d, The immersion ought always to be sudden; not only because it is less felt than when we enter the bath slowly and timorously, but likewise because the effect of the first impression is uniform all over the body, and the blood in this manner is not propelled from the lower to the upper parts. Hence the shower bath possesses great advantages, as it pours the water suddenly upon the whole body, and thus in the most perfect manner fulfils the three rules above specified. 4th, The due temperature of the cold bath can only be ascertained in relation to individual cases, as it extends from 33° to 56° of Fahrenheit, except in partial bathings, where the degree of cold may, and often ought to be, increased by ice, nitre, alum, salt, sal-ammoniac, or other artificial means. 5th, Gentle exercise ought to precede the cold bath, to produce some re-action of the vascular system upon entering it; for neither complete rest nor violent exercise is proper, previously to the use of this remedy. 6th, The morning or forenoon is the most proper time for cold bathing, unless it be in a river; then the afternoon or towards the evening, when the water has been warmed by the sun, and the dinner has been digested, are the most eligible periods of the day; a light breakfast will not be detrimental before using the bath. 7th, While in the water we should not remain inactive, but move about in order to promote the circulation of the blood from the centre of the body to the extremities. 8th, After immersion, the whole body ought to be wiped as quickly as possible, with a dry and somewhat rough cloth. Moderate exercise out of doors, if convenient, is proper, and indeed necessary.'

We now proceed to the consideration of *hot or warm bathing*, from the temperature of ninety to above a hundred degrees, about which much of what is erroneous in theory has also been conceived. As cold immersion was supposed to harden, by constringing and contracting the fibres of the body, so has it been thought that immersion in warm water would tend to soften and relax the material fabric of which the frame is made up. That there may be something of foundation, in fact, for these notions, we would not *in toto* deny; but it seems more consistent with the laws that govern organised existence to refer the effects to excitation, directly or indirectly induced, than to imagine the fibres of the body capable, or rather susceptible, of those mutations that take place in inanimate matter;

and, in point of fact, we find that some individual or individuals in some circumstances, after a reiterated use of warm or hot water to the whole or part of the body's surface, shall be rendered firmer and more robust than they were prior to the employment of this relaxing agency.

Another effect has also been attributed to the use of hot water, or vapor, as a bath, about which there is some reason also to doubt the full legitimacy of the inferences that have been deduced: viz. its expanding or rarefying qualities, displayed upon the fluids of the body, more especially upon the blood; and some writers have reasoned upon the operation of the hot bath from beginning to end under this assumption; we are told, however, by experimenters, that the blood is very little expansible by heat under any circumstances; and it has been observed, that the mean temperature of all the fluids of the body is seldom elevated more than a degree or two by a bath of any kind; and even if the elevation were ten degrees, the expansion of all the circulating fluids would not exceed the bulk of a single additional ounce of blood or of water. So that to a certain sort of stimulation, rather than to mechanical or chemical impulse, are we to attribute the internal changes that occur in the fluids and solids of the body, from alterations of exterior temperature. That these changes to some extent do occur, is, however, pretty certain; and the swelling of the veins, with, indeed, the temporary increase of bulk in the feet, when immersed in hot water, would seem attributable either to an entrance of some of the fluid from without in among the fluids of the body (the possibility of which, as we shall immediately see, is questioned), or to an altered state of the fluids and secretions, and perhaps of the solids, induced by a modification and mixture of exciting and expanding agency; which, in our present state of knowledge respecting the laws and limits of vital forces in their contest with inanimate matter, would appear not sufficiently explained.

In observing upon the conditions of the body in which warm bathing is likely to prove salutary on the one hand, or is open to objections on the other, it may be remarked, that some of the circumstances which render cold bathing fearful, cause warm bathing to be objectionable likewise. Thus, in apoplectic fulness, in tendencies to hæmorrhage from the lungs, or from the head, in some species of asthma, and in many of the disorders ranged under the division of phlegmasiæ by systematic writers, we should equally avoid both the hot and cold bath; and were the old doctrines of reaction and expansion permitted to explain our objections, we should say that, in the first case, rarefaction of fluids and consequent distension of vessel constituted the points of objection; while in the other, the rush of fluids into vessels already in a condition of over excitement rendered the practise dangerous; and to some extent, it does, we repeat, appear to us, in spite of modern refinements in theory, that we should be correct in our reasoning.

There is one curious circumstance connected with the effects of warm bathing upon the system, which is, that it may, by proper management, be brought to reduce the inordinate heat of fever; and Dr. Currie has particularly recommended it with this view, in cases where objections might lie against the employment of cold water for the same purpose; the possession of this property and influence may be taken in full proof that much remains still to be explained on the subject of living temperature; it should be observed that the effect in question is often operated without reference to perspiration, or at least before perspiration appears externally upon the body; and Dr. Currie has proposed an ingenious explanation of the fact, by suggesting whether the secretion of the perspirable fluid, before it is poured out upon the surface, may not occasion an absorption of heat and consequent reduction of temperature, by the greater capacity that the matter of perspiration has for heat than the blood had from which it was formed. See TEMPERATURE *(Animal)*, and PHYSIOLOGY.

From the mode and kind of excitation which warm bathing produces, it might be supposed that chronic rheumatism, that old-standing affections of a paralytic kind, that contracted limbs from arthritic disorders, that spasms and obstructions in the bowels, that many maladies which implicate the nervous organisation without producing plenitude of vessels, and that morbid conditions of the external surface, whether of the skin merely, or whether the cutaneous affection have had to do with the state of internal membranes and visceral derangement, would materially be benefited by its judicious employment—and this we find to be the case. In several of the functional disturbances that are incident to children, arising from the extreme mobility of the frame common to the infantile period of existence, warm bathing, by equalising the circulation, and determining, as it is expressed, to the surface, often proves conspicuously, and very speedily serviceable; but in instances of the occurrence of disorder, whether croupal, convulsive, or intestinal, it is often necessary to premise purging or blood-letting, especially should the child be of a full habit, otherwise the stimulating, and, if we may be permitted to say so, expanding power of the heated water might tend to the production of vascular plenitude to a dangerous excess. It must be allowed that the tendency of warm bathing to occasion copious perspiration is calculated, in some measure, to obviate the objection now preferred against its indiscriminate use; but then the mischief is sometimes done before the system shall have been thus relieved; and we have ventured upon this intimation, because we think, in the general way, too little regard is given in domestic medicine to the circumstances calculated at once to promote the efficacy and insure the safety of the measure under consideration.

Without reference to actual or positive disease, it may be stated, generally, that warm bathing is serviceable in those low conditions of the nervous and vascular and muscular energy, in which the same use of cold water would prove rather injurious than useful; it is a common, and occasionally a good practice, to premise its employment when it is eventually intended that the individual shall go into the cold bath; the

stimulus of the former being of such kind and extent as to insure against the hurtful tendency of the latter; and the good which results from this method would prove that the idea is erroneous, which supposes an individual more liable to take cold, as it is called, while using the warm bath than when not subjected to these changes of temperature. The ancients were in the practice of gradual transition from the hot bath or caldarium, to the tepidarium or cooler, and thence to the frigidarium or cold; but if there be any correctness in the principles above propounded, respecting the innoxious nature of cold immediately upon heat, these precautions in reference to successive temperatures, were unnecessary; and, indeed, in some cases might be worse than useless.

With respect to the tepid bath very little need be said on the present occasion, since water from eighty to ninety degrees is very seldom employed except as a mere abluent; unless, indeed, in those instances of natural or artificial waters which are impregnated with substances that are conceived to have a specific agency of a medical nature. In some disorders of the skin, indeed, and in other chronic ailments, tepid bathing may occasionally be advisable when circumstances forbid the employment of water of either a very low or very high temperature.

The modes of using cold water are, first, by plunging, which is the best calculated, perhaps, to insure all the good of bathing; secondly, by affusion, or pouring water over the head and neck, which is especially applicable to those states of nervous weakness, and vascular fulness and head-disorder, in which the common bath might be objectionable; and, thirdly, by sponging the whole surface of the body immediately upon rising from bed; which last practice may, in the case of most individuals, be pursued with safety and convenience. The writer of these remarks, since he has been accustomed to daily ablution in this way, has found himself much less liable to catarrhal disorder than before; and it may be observed, that he tried, some years since, cold bathing by immersion, without the same agreeable or salutary consequences; but part of this difference of effect he is disposed to attribute to a recent improvement in constitutional energy, which would probably insure, at the present time, more steady re-action, and better general effect than formerly followed immersion.

Baths with Medicinal Impregnations.

In the article Waters, we purpose to enter into a somewhat lengthened detail on the virtues that have been ascribed to the several medicinal springs that are resorted to by the invalid, and which are used as remedies, some in the way of internal administration, exclusively, others both externally and internally. We mean here principally to confine ourselves to one or two remarks, bearing upon the much agitated and still unsettled question, respecting the degree of efficacy that may be expected to attend immersing the body in water, containing particular impregnation, or applying such water in any manner to the external surface.

This question involves in it the very interesting one of cutaneous absorption, as it has been called; in other words, the enquiry, whether, while the outer skin be whole and entire, any substances, however subtle, can be made to penetrate through it; it must, however, be recollected, that the negativing of this proposition would not imply the denial of all influence from exterior applications, since the materials used may be of such a stimulating or irritating quality as to produce a sort of abrasion of the scarf or outer covering; and since some of them being of a volatile kind, and surrounding the subject of the experiment with their fumes, the lungs may be the media through which the whole system may become impregnated with their qualities.

Now several authors, who have written on the subject of bathing, have all along assumed the permeability of the outer skin to the water employed; and one of them, Dr. Marcard, states that the sufferings of Tantalus will not be rated very highly by the naturalist. We have already said that the bulk of a limb, which is immersed in hot-water, is for a time augmented; and this has been attributed by those who reason on the supposition of cutaneous inhalation, or imbibing, to the actual penetration, through the skin, of some portion of the fluid. Many experiments, however, have been instituted, which seem to prove that there is some fallacy in this conclusion, and that the weight of the whole body is not at all added to by total immersion, for some length of time, in water even of a high temperature.

Seguin, Rousseau, Currie, and others, have pursued a series of experiments, to which more particular allusion will be made in the article Physiology; and from which they infer, that, while the skin is uninterfered with, either by mechanical pressure or by actual abrasion, no matter whatever, solid or fluid, medicinal or otherwise, can be received from without, the scarf skin being impenetrable to the most subtle material; in the words of Dr. Currie, 'though the exhalants of the skin pierce the epidermis (scarf skin), and come in contact with the external air, the mouths of the absorbents terminate under it, and are covered by it; and while it remains unirritated and entire, no absorption of solid, liquid, or aeriform elastic fluid takes place on the surface. In the instances,' he adds, 'that are supposed to favor the contrary opinion, it will be found that the article absorbed is forced through the epidermis by mechanical pressure; or that the epidermis has been previously destroyed by injury or disease; or, if sound, that the article applied to it is of an acrid nature, which first irritates and erodes this tegument, and then, coming in contact with the mouths of the lymphatics under it, is of course absorbed. Seguin's words, expressive of this fact and principle, are equally decided and forcible: 'The epidermis is a barrier which no kind of virus (and he includes all internal matters) can pass while that tissue is in a sound state and perfectly whole; nor can they be absorbed by the skin.'

For a more detailed discussion of this interesting topic we must refer, as above intimated, to the article Physiology. Under the word Medi-

CINE, too, facts in support of, and against the doctrine of cutaneous inhalation will call for notice and comment; we must here limit ourselves to stating that the anti-absorptionists have at least proved a great deal, so much so, that it may be very fairly doubted whether inferences respecting impregnations of the system by baths have not been deduced too hastily and empirically. But, on the other hand, it cannot be doubted that there are substances employed which have the power of forcibly permeating the outer skin by their irritating and eroding quality; and are in this way either actually absorbed into the system generally, or by the sympathy which the true skin constantly keeps up with internal organs; the influence of the remedy may in this manner be transmitted to the interior without any actual conveyance of matter. There is still another way in which medicinal substances may act upon the frame without being actually received into it, viz. either by corrugating and strengthening, or relaxing and mollifying the fibres of the body; thus, chalybeate may be more tonic than common water, by the tonic influence it exerts exteriorly. From what we have already advanced, however, in another part of the present paper, it will be understood that this principle of agency is of somewhat equivocal admission; and that it is at any rate much modified and limited by the laws of life.

It will not be proper to dismiss this part of our investigation without adverting to one particular mode of exciting interior movements, through the medium of exterior medicinals, viz. by the use of mineral acids applied to the surface of the body; which, whether they act through the medium of the absorbing power, or whether their agency be effected by means of the nervous system, and that sympathetic relation which we have already stated the skin maintains with internal parts; certain it is that they do display an influence upon the frame which gives them a fair claim of admission into the catalogue of therapeutic agents. From Dr. Good's recently published volumes, entitled the Study of Medicine, we shall extract an account of the bath to which we now refer.

'There is yet another remedy,' says Dr. G. 'for affections of the biliary organs, &c. which of late years has excited great attention, and is now surmounting an ungenerous prejudice that was at first very extensively directed against it—and that is the diluted aqua regia bath, invented by Dr. Scott of Russell Square. For nearly thirty years he has been in the habit of using this preparation, and has tried it in almost every variety of strengths, and almost every variety of proportions which the two acids that enter into the composition may be made to bear to each other. He commenced his experiments in India, where, on account of the greater degree of torpitude the liver is apt to acquire than in more temperate climates, he was in the habit of forming his bath stronger, and making it deeper than he has found it proper to do in our own country; and where, upwards of twenty years ago, he plunged the duke of Wellington into one up to his chin, for a severe hepatic affection he was then laboring under, and thus restored him to health in a short time.'

In England it is not often that he finds it necessary to raise the bath much above the knees; and he frequently contents himself with a mere foot-bath or common wash-hand basin alone. In both which cases, however, the attendants on the patient should sponge him at the same time with the diluted aqua regia over the limbs, and occasionally over the body.

The aqua regia should be compounded of three parts in measure of muriatic acid and two of nitric acid; and, in preparing them for use, a pint of the combined acid is to be mixed with the same measure of water. It should, however, be observed by those who are inclined to form this mixture extemporaneously at their own houses, that, if either of the acids be poured immediately on the other a large volume of very offensive gas will be disengaged; on which account it will be better to pour them separately and slowly on their proper measures of water.

If the acids be of adequate strength, the mixture, subdiluted for bathing, will, to the taste, have the sourness of weak vinegar, and perhaps prick the skin slightly, if very delicate, but not otherwise, after it has been applied to the surface for half an hour. But since these acids vary much in their degree of concentration, as distilled by different chemists, there will be some variation in their power. The strength of the bath, however, should not be much greater at any time than the proportion here laid down; for otherwise it may excite a troublesome rash, and give a yellow hue to the nails and skin of the feet, or whatever other part is exposed to its action. A narrow tub, for a knee-bath, just wide enough to hold the feet and reach the knees, should contain three gallons of the prepared bath liquor, and consequently about nine ounces in measure of the diluted aqua regia. For a foot bath half a gallon may be sufficient, and a common wash-hand basin may be employed as a vessel for the purpose. The feet should remain in the bath for twenty minutes or half an hour, and the legs, thighs, and abdomen, be in the mean time frequently sponged with the same. In the winter the water may be used warm; but this is not necessary in the summer. The baths may be employed first daily for a fortnight or three weeks, and afterwards every other day, or only twice a week.

Dr. Scott affirms that he has employed this process with decided advantage in almost all cases dependent upon a morbid secretion of bile, whether the secretion be superabundant, defective, or depraved. He finds it often, within a few hours of the first bathing, increase the flow of bile and ameliorate its character; and, in consequence hereof, excite an expulsion of dark-colored fæces, bright colored bile, or bile of green brown or black color, like tar mixed with oil. He has told me, also, that when employed in the midst of a paroxysm of severe pain from spasm of the biliary ducts, or the passing of a gall-stone, he has often known it to operate like a charm, and produce almost immediate ease.

'This account,' continues Dr. Good, 'may be rather overcharged from the ardent mind of its intelligent inventor; but the process is worth following up, and varying in other properties as well as employing in other families of ex-

eases. My own use of it is at present too limited to speak with decision; yet so far as I have tried it, it has certainly appeared to me to allay irritation, and produce a tonic effect. In two or three instances the advantage has been decisive; and patients who had hitherto been seldom two months without a severe return of the complaint, have entirely escaped, and apparently lost the morbid predisposition. In a few other cases it has completely failed.'

Under the head of specific, as opposed to common bathing, it may perhaps be right to mention the *sea water*, which is generally imagined to possess some superior, and even different, efficacy from fresh water of the same temperature. It is a vulgar notion that exposure to sea water, in the way of accident or otherwise, does not so readily engender catarrhal disorder as would the like exposure to ordinary water; and if this be a well-founded notion, there would seem to be some faculty possessed by the saline impregnation, capable of counteracting its otherwise injurious influence. How this operates, it does not seem very easy to understand, and we are disposed to suspect that there is some fallacy in the conclusion altogether; it may be that external circumstances, that habit, that the superior robustness of those individuals who are mainly exposed to sea water, may assist in its comparative negation of deleterious influence, and that the appendages to sea bathing may likewise act in aid of its superior salubrity, to a greater extent than is usually conceived. While we throw out these intimations, we would not, at the same time, wish to be thought unjustifiably sceptical with regard to the greater power of sea, than of common bathing; and it may be, that the recent project of causing 'the waters of the ocean to come galloping up to London,' is not mere quackery or chimera. ..

Dr. Parr observes that 'bathing in the sea is on the whole preferable to common bathing, as the heat is more uniform. It is, also, perhaps from the agitation of the water, more refreshing. Other causes of preference have been assigned; one is the greater pressure of the water impregnated with salt; the other the stimulus of that salt left on the skin. Each may have some effect, and the latter ground of preference is assuredly more certain than the former. We cannot easily conceive how the momentary increase of pressure can have any considerable effect, except by the increase of momentum; and the stay in the sea is too short to expect much advantage from this source.'

Vapor Baths can scarcely be considered as specifically different from those of water, heated to an extremely high temperature. This mode of bathing, though lately used in this country more than formerly, has been more freely and generally employed on the continent, and especially in Russia, where it constitutes one of the principal luxuries of the inhabitants of all ranks: and it is there employed for a multitude of diseases. It conveys heat more gradually than immersion in water; at the same time, more heat can be applied to the body, and its application may be continued for a longer time. The vapor bath was used by the ancient Romans, as it is by the modern Russians; but the former, as we have observed in a former part of the present article, did not practise the sudden transition which is common with the latter. See Vapor.

Air Bath. The celebrated Franklin, by his recommendation of reducing the temperature of the skin, in exposing the naked body to the air for some minutes, and thus causing a healthy excitation and pleasant feeling, in place of febrile irritation and morbid heat, has brought the practice of air bathing into pretty general employ. It merely consists in getting out of bed without any clothing, and walking for a time on the cold floor, and then either putting on the clothes, or what is better, returning to the warm bed, and lying for some time previously to dressing. This may, indeed, be practised at any time of the night with safety, when the individual is restless and uncomfortable from feverish heat; the effect of it, by the way, proves that the irritation connected with febrile heat has reference to something beyond the mere augmentation of temperature, since the re-action after returning to bed often brings with it as great, though not so uncomfortable, a measure of heat as that which prevailed previously to the exposure to cold; a mild and gentle perspiration sometimes also succeeds, which likewise shows that the capillary vessels of the surface are brought into a very different condition of being, from what was their state prior to the temporary reduction of temperature.

On Dry Baths, as they have been called, we have very little to offer. Some time since a good deal of attention was excited to a proposal, which indeed was put in practice, of burying the body in earth up to the chin, under the notion that its attractive or absorbing powers would draw morbid taints from the body, and thus restore health. In the commentaries of Van Swieten, on the aphorisms of Boerhaave, the following account is given of this practice:—'I have heard from a person most deserving of credit, that through the whole kingdom of Grenada, they have a method of curing phthisis by an earth bath; and I have since read the same account in the works of Francisco Solano de Lugue, who caused a pit to be dug in the earth, where no plants had been sown; and into this pit he put his patients up to the neck, and then covered them with the same earth which had been dug out, and there left them till they began to shiver, when he caused them to be taken out and wrapped in linen cloths, wetted with rose water.' A Dr. Graham, too, an empiric, who gained some celebrity, proposed and employed earth bathing; a practice (says a modern writer), which in the way he used it, consigned some of his patients to a perpetual mansion under the ground.

Sailors have been in the practice of employing warm sand baths for scurvy, and the ancients adopted many modes of exciting perspiration by dry heat; it is said moreover to be a practice at this day, in some parts, to cover the body with horse dung, for several chronic ailments; but these expedients are not in general thought available by individuals of the present period, who make physiology and pathology the ground-work of their remedial plans; and we are not, there-

fore, called upon to engage in any further disquisition respecting their alleged efficacy, or supposed modes of operation.

Bathing among the Turks.—In modern Turkey, as well as among the ancients, bathing makes a part of diet and luxury; so that in every town, and even village, there is a public bath. Indeed the necessity of cleanliness, in a climate where one perspires so copiously, has rendered bathing indispensable; the comfort it produces preserves the use of it; and Mahomet, who knew its utility, reduced it to a precept. Of these baths, and the manner of bathing, particularly at Cairo, the following account is given by Savary, in his Letters on Egypt: 'The first apartment one finds, in going to the bath, is a large hall, which rises in the form of a rotunda. It is open at the top, to give a free circulation to the air. A spacious estrade, or raised floor, covered with a carpet, and divided into compartments, goes around it, on which one lays one's clothes. In the middle of the building, a jet d'eau spouts up from a basin, and agreeably entertains the eye. When you are undressed, you tie a napkin round your loins, take a pair of sandals, and enter into a narrow passage, where you begin to be sensible of the heat. The door shuts to; and at twenty paces off, you open a second, and go along a passage, which forms a right angle with the former. Here the heat increases. They who are afraid of suddenly exposing themselves to a stronger degree of it, stop in a marble hall, in the way to the bath properly so called. The bath is a spacious and vaulted apartment, paved and lined with marble, around which there are four closets. The vapor, incessantly rising from a fountain and cistern of hot water, mixes itself with the burning perfumes. These, however, are never burnt except the persons who are in the bath desire it. They mix with the steam of the water, and produce a most agreeable effect. The bathers are not imprisoned here as in Europe, in a sort of tub, where one is never at one's ease. Extended on a cloth spread out, the head supported by a small cushion, they stretch themselves freely in every posture, whilst they are wrapped up in a cloud of odoriferous vapors, which penetrates into all their pores. After reposing there some time, until there is a gentle moisture over the whole body, a servant comes, presses you gently, turns you over, and when the limbs are become supple and flexible, he makes all the joints crack without any difficulty. He masses (i. e. touches delicately), and seems to knead the flesh without making you feel the smallest pain. This operation finished, he puts on a stuff glove, and rubs you a long time. During this operation, he detaches from the body of the patient, which is running with sweat, a sort of small scales, and removes even the imperceptible dirt that stops the pores. The skin becomes soft and smooth like satin. He then conducts you into a closet, pours the lather of perfumed soap upon your head, and withdraws. The ancients did more honor to their guests, and treated them in a more voluptuous manner. Whilst Telemachus was at the court of Nestor, 'the beautiful Polycasta, the handsomest of the daughters of the king of Pylos, led the son of Ulysses to the bath; washed him with her own hands; and, after anointing his body with precious oils, covered him with rich habits and a splendid cloak.' Pisistratus and Telemachus were not worse treated in the palace of Menelaus. 'When they had admired its beauties, they were conducted to basins of marble, where a bath was prepared; beautiful female slaves washed them; and, after anointing them with oil, covered them with rich tunics and superb pellices.' The closet to which one is conducted is furnished with a cistern and two cocks; one for cold, the other for hot water. There you wash yourself. Soon after the servant returns with a depilatory pomatum, which in an instant makes the hair fall off the places it is applied to. Both men and women make general use of it in Egypt. It is composed of a mineral called rusma, which is of a deep brown. The Egyptians burn it lightly, knead it with water, mixing it with half the quantity of slacked lime. This grayish paste applied to the hair, makes it fall off in two or three minutes, without giving the slightest pain. After being well washed and purified, you are wrapped up in hot linen, and follow the guide through the windings that lead to the outer apartment. This insensible transition from heat to cold prevents one from suffering any inconvenience from it. On arriving at the estrade, you find a bed prepared for you; and scarcely are you laid down before a child comes to press every part of your body with his delicate fingers, in order to dry you thoroughly. You change linen a second time, and the child gently grates the callosity of your feet with pumice stone. He then brings you a pipe and Moka coffee. Coming out of a stove where one was surrounded by a hot and moist fog, where the sweat gushed from every limb, and transported into a spacious apartment, open to the external air, the breast dilates, and one breathes with voluptuousness. Perfectly massed, and, as it were regenerated, one experiences an universal comfort. The blood circulates with freedom; and one feels as if disengaged from an enormous weight, together with a suppleness and lightness to which one has been hitherto a stranger. A lively sentiment of existence diffuses itself to the very extremities of the body. Whilst it is lost in delicate sensations, the soul sympathising with the delight, enjoys the most agreeable ideas. The imagination, wandering over the universe, which it embellishes, sees on every side the most enchanting pictures, every where the image of happiness. If life be nothing but the succession of our ideas, the rapidity with which they then recur to the memory, the vigor with which the mind runs over the extended chain of them, would induce a belief that in the two hours of that delicious calm that succeeds the bath, one has lived a number of years.' Such are the baths, the use of which was so strongly recommended by the ancients, and which are still the delight of the Egyptians. It is by means of them that they cure rheumatisms, catarrhs, and such cutaneous disorders as are produced by want of perspiration. There are no people who make more frequent use of them than the Egyptians, and there is no country where there are fewer asthmatic people. The asthma is hardly known there. The women are passionately fond of these baths, frequent

them at least once a week, and take with them slaves properly qualified to assist them. More luxurious than the men, after undergoing the usual preparations, they wash their bodies, and above all, their heads, with-rose water. It is there that female head-dressers form their long black hair into tresses, which they mix with precious essences instead of powder and pomatum. There they blacken the edge of their eye-lids, and lengthen their eye-brows with cohel, a preparation of tin burnt with gall-nuts; and stain the finger and toe nails with the leaves of henne, a shrub common in Egypt, which gives them a golden color. The linen and clothing they make use of are passed through the sweet steam of the wood of aloes; and when the work of the toilet is at an end, they remain in the outer apartment, and pass the day in entertainments.

Bathing of Hawks, or Falcons, is done when they have been thoroughly reclaimed; they are then offered water to bathe in where they may stand up to the thighs, choosing a temperate clear day for that purpose. By the use of bathing, a hawk gains strength, with a sharp appetite, and so grows bold.

Bath-kol, i. e. the daughter of a voice, an oracle among the Jews, frequently mentioned in the Talmud. It was a fantastical way of divination invented by the Jews, though called by them a revelation from God's will, which he made to his chosen people, after all verbal prophecies had ceased in Israel. It was in fact a method of divination similar to the sortes Virgilianæ of the Heathens. For, as with them, the first words they happened to dip into, in the works of that poet, were a kind of oracle whereby they predicted future events; so, with the Jews, when they appealed to Bath-kol, the first words they heard from any man's mouth were looked upon as a voice from heaven, directing them in the matter they enquired about. See Sortilege.

BATHMUS, Βαθμος, from βαινω, I move; in anatomy, an appellation given to such cavities of bones as receive the prominences of other ones into them.

BATHRUM, a name given by ancient surgeons to a kind of stool or bench proper for the reduction of dislocated bones. This is called βαθρον Ἱπποκρατειον, or the hyppocratic stool. Its description and use are represented at large by Sculterus. Arm. Chir. p. i.

BATHSHEBA, or Batshua, the daughter of Eliam, or Ammiel, wife of Uriah the Hittite. She was the mother of four sons by David, of whom Solomon and Nathan are reckoned in the genealogy of Jesus Christ.

BATHURST (Allan), earl of Bathurst, one of the most celebrated statesmen of queen Anne's reign, was born in 1684. His studies and his education were equally conducive to the brilliant figure he was destined to make in social life and in the senate, as a polite scholar, and a patriot. These talents he had an opportunity of displaying early as 1705; when, at the request of his father, Sir Benjamin, and of the constituents of Cirencester, he was returned to parliament for that borough. He distinguished himself particularly in the struggles and debates relative to the union with Scotland, and firmly supported that measure. Though he consented to act a subordinate character in the opposition planned by Mr. Harley and St. John, to the measures of the duke of Marlborough, he was of infinite service to his party, and the loss of the battle of Almanza seconded his efforts to dispel the intoxication of former successes. Amidst the storms of politics he steadily maintained a personal regard for Lord Somers, president of the council; and when that nobleman was divested of office, Mr. Bathurst preserved his esteem. In consideration of his zeal and services, the queen advanced him in 1711, to the dignity of a peer, by the title of baron Bathurst, of Battlesden, in Bedfordshire. He continued, however, to speak his sentiments with an undaunted freedom in the upper house; and was a formidable opponent to the court measures during the whole of Sir Robert Walpole's administration. The acrimony of the prosecution carried on against the earl of Oxford, lord Bolingbroke, and the duke of Ormond, particularly stimulated his indignation and his eloquence; and on this occasion he observed, 'that the king of a faction was but the sovereign of half his subjects.' The South Sea scheme having infected the whole nation with a spirit of avaricious enterprise, an infinite number of families were involved in ruin. Lord Bathurst publicly impeached the directors, whose arts enabled them to amass surprising fortunes; and moved for having them punished by a forfeiture of their estates. When the bill of pains and penalties against Atterbury, bishop of Rochester, was brought into the house of lords, among the many friends the bishop's eloquence and ingenuity had procured him was Lord Bathurst. He spoke against the bill with vehemence, and declared, he 'could hardly account for the inveterate malice some persons bore to the ingenious bishop of Rochester, unless it was that they were infatuated, like the wild Americans, who believe they inherit not only the spoils, but the abilities of the man they destroy.' Sir Robert Walpole, having, after obstinate struggles, been forced to resign all his employments, Lord Bathurst was sworn of the privy council, and made captain of the gentlemen pensioners, which post he resigned in 1744. He was appointed treasurer to the Prince of Wales in 1757 and continued in the list of privy counsellors at the accession of George III. Lord Bathurst's integrity gained him the esteem even of his opponents; and his humanity and his benevolence, the affection of all that knew him more intimately. He added to his public virtues all the good breeding, politeness, and elegance, of social intercourse. Congreve, Vanburgh, Swift, Prior, Rowe, Addison, Pope, Arbuthnot, Gay, and most men of genius in his own time, cultivated his

friendship, and were proud of his correspondence. Pope thus addresses him, in his Epistle on the Use of Riches:

> 'O teach us, Bathurst, yet unspoil'd by wealth!
> That secret rare, between th' extremes to move,
> Of mad good nature, and of mean self-love.'

And Sterne, in his letters to Eliza, thus speaks of him: 'This nobleman is an old friend of mine: he was always the protector of men of wit and genius; and has had those of the last century always at his table. The manner in which his notice began of me, was as singular as it was polite. He came up to me one day as I was at the Princess of Wales's court; 'I want to know you, Mr. Sterne; but its fit you should know also who it is that wishes this pleasure: you have heard, continued he, of an old Lord Bathurst, of whom your Popes and Swifts have sung and spoken so much: I have lived my life with geniuses of that cast, but have survived them; and despairing ever to find their equals, it is some years since I have closed my accounts, and shut up my books, with thoughts of never opening them again: but you have kindled a desire in me of opening them once more before I die, which I now do; so go home, and dine with me.' 'At eighty-five,' he continues, 'he has all the wit and promptness of a man of thirty; a disposition to be pleased, and a power to please others beyond whatever I knew!' In the latter part of his life, he preserved his cheerfulness, and was always accessible, hospitable, and beneficent. He delighted in rural amusements; and enjoyed the shade of many a lofty tree which he had planted himself. Till within a month of his death, he constantly rode out on horseback two hours before dinner, and drank his bottle of claret or Madeira after it. He used to declare in a jocose manner, he never could think of adopting Dr. Cadogan's regimen, as Dr. Cheyne had assured him, fifty years ago, he would not live seven years longer, unless he abridged himself of his wine. Pursuant to this maxim, having invited several of his friends to spend a few cheerful days with him at his seat, and being one evening very loth to part with them; on his son the late chancellor's objecting to their sitting up any longer, and adding that health and long life were best secured by regularity, he suffered him to retire: but as soon as he was gone, the cheerful father said, 'Come, my good friends, since the *old* gentleman is gone to bed, I think we may venture to crack another bottle.' He was advanced to the dignity of earl in 1772; living to see the above nobleman, his eldest son, several years lord high chancellor of Great Britain, and promoted to the peerage in 1771, by the title of Baron Apsley. Lord Bathurst married Catharine, daughter of Sir Peter Apsley, by whom he had two sons and five daughters. He died, after a few days illness, at his seat near Cirencester, in 1775, aged ninety-one.

Bathurst (Ralph), M. D. an eminent physician and divine, born in 1620. He studied divinity in Trinity College, Oxford; but the times of confusion coming on, he applied himself to physic. He took the degree of M. D. and rose to such eminence, that he was, in the time of the usurpation, appointed physician to the state. Upon the Restoration he quitted physic; was elected F. R. S. and president of his college; and having entered into holy orders, was made chaplain to the king, and afterwards dean of Wells. Soon after, he served as vice-chancellor of Oxford, and was nominated by king William and queen Mary to the see of Bristol, but refused to accept it. He was an orator, a philosopher, and a poet: he possessed an inexhaustible fund of wit, and at eighty years of age, was a facetious companion. Ridicule was a weapon which he had always at hand. His poetical pieces in the Musæ Anglicanæ are excellent. He wrote several poems in English and Latin; and died in 1704, aged eighty-four.

Bathurst, the chief town of a new settlement near the Great Fish River, on the eastward of the colony of the Cape of Good Hope. It is rapidly increasing. A large inn has been already built for the accommodation of visiters; and as the site has been well chosen, Bathurst is expected very soon to become one of the first towns in the colony.

Bathurst, also a new British settlement on the island of St. Mary, at the mouth of the Gambia, on the western coast of Africa. Sir George Collier, in his second report, on the settlements of this coast, says, 'The island of St. Mary, upon which Bathurst, the capital, is rising with the same rapidity that the most healthful climate, and most fruitful and productive country could desire, is a barren, sandy spot, in many places scarcely above the level of the sea. Buildings, combining neatness and beauty, are appearing; and St. Mary bids fair to rival every spot on the lengthened line of coast of western Africa, in commerce and industry.'

BATHUS, in entomology, a species of papilio (Pleb. Rur.), with entire black wings, glossed with blue; beneath white, with numerous black dots, and a continued fulvous band. Fabricius. Inhabits Austria. It is the papilio battus of Schmetterl, and papilio telephii of Esper.

BATHYCHRUS Color, in painting, a term used by the Greeks to express what the Romans call austerus color.

BATHYERGUS, from *βαθυεργειν*, to work deeply in the earth; in zoology, a genus of animals belonging to the order rodentia, class mammalia. Its generic character is, incisor teeth large, not covered by the lips, and wedge-shaped; canine none; grinders four on either side, above and below, the posterior sloping deeply outwards; muzzle broad; eyes small; auricles none; tail short and bristly; toes five on each foot, short and armed with thin flat nails. The two species are, 1. B. maritimus, Illig. Cur.; mus maritimus, Lin.; la grande taup du cap, Buff.; African rat, Pen; sand mole of the Dutch; about the size of a rabbit, and of a cinereous brown colour; having a large head without auricles, and the nose slightly flattened, wrinkled, and black; the legs are short, with four toes, long claws, and a thumb, with a short claw on the anterior extremities. The hind legs are long, having five toes armed with short claws. It inhabits the Cape, where it is known by the name of zand mole. It burrows near the shore, and renders travelling in

horseback dangerous. Pennant says, they sometimes let a horse sink in them up to the shoulders! 2. B. capensis, Cur.; mus capensis, Lin. Palk.; taup du cap de Bonne Esperance, Buff, Cape rat; Pen. About seven inches long, of a dusky rufous ash brown color, with a white stripe round the eye and ear, and on the vertex; muzzle black. It is very common in the gardens at the Cape, and called, 'bless moll.'

BATHYLLUS and PYLADES, inventors of pantomime entertainments on the stage. Bathyllus succeeded in representing comedy; Pylades in tragedy. The art consisted in expressing the passions by gestures, attitudes, and dumb show; not, as in modern times, in machinery, and the fooleries of harlequin. They flourished at Rome, under Augustus, about A. D. 10. Each of them kept scholars, who perpetuated their master's name: the followers of Bathyllus, who excelled in the comic calling themselves Bathylli; and those of Pylades, who excelled in the tragic, calling themselves Pyladæ.

BATILDA (St.), commonly called St. Badour, a Saxon princess, was carried away from England by pirates, and sold to Archambaud, mayor of the palace, where she was seen by Clovis II., who married her, and had by her Clotarius III., Childeric II., and Thierri III. She administered the government with great wisdom after his death, and after founding several abbeys, died about 680, in a monastery.

BATINDA, a small district in Hindostan, in the north-west quarter of the province of Delhi, comprehending the Lachy jungle, celebrated for its breed of excellent horses, said to be descended from some of the Persian horses stolen from the camp of Nadir Shah, in the year 1739.

BATIS, in botany, a genus of the tetrandria order, belonging to the diœcia class of plants, the characters of which are: of the male, the amentum is four ways imbricated, and both the calyx and corolla are wanting; of the female, the amentum is ovate, the involucrum dyphyllous; calyx and corolla wanting; the stigma is bilobate and sessile; the berries condumate and four-seeded. There is but one species; viz. B. mantima, a native of Jamaica.

BATIS, in botany, the name by which Pliny and some authors call the sea-plant samphire.

BATIS, in ichthyology. See BATOS, and RAIA.

BATISCAN, a river of Lower Canada, rising in the ridge of mountains that run westerly into the interior from Quebec. It falls into the St. Lawrence, about fifty-four miles above that city. At its mouth, it is 350 yards broad, but is so shallow as not to be accessible for boats higher than six or seven miles up the stream, which is also interrupted by many falls and rapids.

BATISTE, in commerce, a fine white kind of linen cloth manufactured in Flanders and Picardy. There are three kinds of batiste; the first very thin; the second less thin; and the third much thicker, called Holland batiste, as coming very near the goodness of Hollands. The chief use of batiste is for neck-cloths, head-cloths, surplices, &c.

BATMAN, in commerce, a kind of weight used at Smyrna, consisting of six okes. Forty batmans make a camel's load, and amount to about 720lb. in English weight.

BATMAN, PERSIAN, or BATTAMENT, is of two kinds: one called the king's weight, batman de chahi, or cheray, used for weighing most of the necessaries of life, equivalent to about 12½lb. Paris weight; the other called batman of Tauris, equal to 6lb. 4oz. Paris or Amsterdam weight. These are the proportions given by Tavernier. Chardin rates the Persian batmans somewhat lower, viz. the former at 12lb. 12oz. and the latter at 5lb. 14oz.

BATMAN, TURKISH, is also of two kinds; the larger, containing six okes, ocques, at 3¾lb. Paris weight the ocque; so that the batman amounts to about 22½lb. the smaller, composed likewise of six ocques, at 15 oz. the ocque, amounting to 5lb. 10 oz.

BATMANSON (John), prior of the Carthusian monastery, in the suburbs of London. He was some time a student at Oxford, and intimately acquainted with Edward Lee, archbishop of York, at whose request he wrote against Erasmus and Luther. He died in 1531, and was buried in the chapel belonging to the monastery. Bale says he was a proud forward person; and that Erasmus, in a letter to the bishop of Winchester, calls him an ignorant fellow. But Pitts gives him the character of a man of genius, zeal, piety, and learning. He wrote, 1. Animadversiones in Annotationes Erasmi in Nov. Testamentum. 2. A Treatise against some of Luther's works. These two he afterwards retracted. 3. Commentaria in Proverbia Solomonis. 4. In cantica Canticorum. 5. De unica Magdalena. 6. Institutiones Noviciorum. 7. De Contemptu Mundi. 8. De Christo duodenni. 9. On the words Missus est, &c.

BATONI (Pompeo), a celebrated Italian painter, born at Lucca in 1708. He gained great fame by his productions, which were eagerly sought after by persons in the highest stations. So that honors and riches were heaped upon him; the emperor Joseph granted him a patent of nobility. He died in 1787. One of his most admired pieces, is a representation of Simon the magician contending with St. Peter, in the great church dedicated to the apostle at Rome.

BATNEER, a town of Battie, and province of Delhi, in Hindostan. It is situated on the borders of a sandy desert, and was formerly a place of great consequence. It was taken by the celebrated Timur, or Tamerlane, in the year 1398, who put all the inhabitants to death, and burned the city. Long. 74°. 45′. E., lat. 29°. 28′ N.

BATON, in botany, a name by which some authors call the true turpentine tree.

BATON, in military affairs, a staff.

BATON A DEUX BOUTS, a quarter-staff.

BATON DE COMMANDEMENT, an instrument of particular distinction, which was formerly given to generals in the French army. Henry III. before his re-ascension to the throne, was made generalissimo of all the armies belonging to his brother Charles the IX., and publicly received the baton, as a mark of high command.

BATON ROUGE, a flourishing post town of Louisiana, on the east bank of the Mississippi,

about 140 miles above New Orleans. The population is estimated at 5000 or 6000 persons.

BATOON, in military affairs, a truncheon, or marshal's staff

Batoons of St. Paul (Bastoncini di San Paolo), in natural history, a name given by some of the Italian writers, as Augustino Scilla, and others, to the lapides Judaici, or other spines of echini. These are found in vast abundance in the island of Malta; and, like almost every thing else there, are denominated from St. Paul.

BATORI (Stephen), king of Poland. He was born of a noble family in Transylvania, and elected prince of his native country in 1571; after which he gained such reputation, that upon the deposition of Henry, duke of Anjou, by the Poles, his party prevailed over that of Maximilian; and, having married the princess Anne, he was crowned in 1576. He proved an excellent prince, and successfully opposed both Russia and Sweden; while he gained great honor to himself by his merciful conduct in the midst of the most horrible cruelties on the part of his enemies. He died in 1586.

BATOS, in ichthyology, the name given by Aristotle, and all the old writers, to the skait. They have generally called the male batos, and the female batis. It is a species of the raia, and distinguished by Artedi by the name of the variegated ray, with the middle of the back smooth, and one row of spines on the tail. Albertus calls it the rayte, and rubus.

BATRACHIA, in zoology, one of the orders or great divisions of the class Reptiles.

BATRACHIAS Lapis, from *βατραχος*, a frog; the frog-stone, a name applied by different writers to two very different substances; some understanding by it lumps of common flint, accidentally formed into this figure; and others, those pieces of amber which contain either a whole frog, or any part of one.

BATRACHOMYOMACHIA, from *βατραχος*, a frog, *μυς*, a mouse, and *μαχια*, a battle; the battle of the frogs and the mice, the title of a fine burlesque poem generally ascribed to Homer.

BATRACHUS, from *βατραχος*, a frog; in zoology, the frog fish. A genus of animals belonging to the family perca, order acanthopterygii, class, pisces. The generic character is head flattened horizontally, larger than the body; ventral fins straight, attached under the throat; first dorsal fin short, supported by three spinous rays; second dorsal long and soft, opposite to which the anal fin also soft; mouth and gills very large; gill flap spined; lips sometimes bearded. This genus was established by Schneider in his Bloch's Icthyology, and named from the immense size of the head, resembling that of the frog. The species inhabit the southern hemisphere, and are separated into two divisions, those with and those without beards or cirrhi on the lip. The principal are, 1. With beards, B. didactylus; two fingered frog fish, inhabits Guinea; B. tau, toad fish; Garden states that this animal is called by the inhabitants of Carolina the 'toad fish;' by the French it has been called 'crapaud de mer.' Its habits are very little known, but it is considered predacious. It is found in hot climates, and is taken on the coasts of Carolina. B. grunniens, Schneid.; cottus grunniens, Lin. Bloch; grunting bull head, Shaw; grunting frog fish. This animal is about ten inches long; of a brown color marked with white on the sides; inhabits America and the Indian Seas. 2. Without beards. B. Surinamensis. B. Indicus, are founded by Bloch, the cottus insidiator, and B. guavina of the Havannah.

BATSCH (Augustus John George Charles), was born at Jena in 1761. He became professor of philosophy in the university of his native place, where he founded a society for the study of natural history, of which he was president. He died in 1802. His works are—1. Elenchus Fungorum, 8vo. 2. An Introduction to the Knowledge and History of Vegetables, 8vo. 3. Essays on Botany and Vegetable Physiology, 8vo. 4. Botany, for Ladies and Amateurs, 8vo. 5. Introductory Essay to the Knowledge of Animals and Minerals, 8vo.

BATSEN, or Bacs, a county and town of Hungary; the county is bounded on the north by that of of Scholt, on the south by Bodrog, on the east by little Camania and the Theyss, and on the west by the Danube, which separates it from Sclavonia. It is inhabited by Hungarians and Rascians, and a few Germans. After being united with that of Bodrog, it was separated from it for several years, but was re-united by Joseph II. Since the introduction of the Spanish breed of sheep the trade in wool has been very considerable. This county has been frequently the theatre of war between Austria and Turkey. The capital, which was formerly more considerable than at present, and was the see of a bishop, suffragan of Colocza, is situated four miles from the north side of the Danube, and twenty from the conflux of the Danube and Drave. Twenty miles north-east of Funfkirchen, and seventy-five south of Buda. Long. 19°. 10′. E., lat. 46°. 18′. N.

BATTA, a country of Sumatra, stretching along the south-western shore between the Sinkell and Tabuyong, runs across the whole island. This is one of those districts that have become known to us principally by the modern missionary exertions. In the autumn of 1821 Mr. Burton visited the interior, opposite to the East India Company's settlement at Natal, and found it composed of rugged hills, covered with thick forests, and separated by ravines which often formed the beds of rapid rivers. His journey extended as far as Mora Summa, a station which has lately been chosen by the Company's resident at Natal, for the purpose of maintaining a freer communication with the Battas. This station is situated about the middle of the range of lofty mountains seen in a north-easterly direction from Natal hill, and within three days walk of the Mendeeling country, which is spoken of in the highest terms by the princes nearer the shore, who have visited it; and is supposed to contain a population of 100,000 individuals. Mr. Burton says, 'The country round here is the most beautiful I have seen on Sumatra. It is cultivated chiefly with labangs, for several miles in every direction. There is no sawah ground. The

Batta people of this place, unlike their neighbours, and unlike Batta people of other places, live on their respective farms, and not collected together in dusuns (villages). The houses scattered upon the surrounding hills, reminded me much of my favorite Gloucestershire, as I viewed them at a distance.'

The chief products of this country are pepper, plantains, Indian corn, camphor, cotton, indigo, cassia, and gum benzoin. Gold and sulphur are among its mineral treasures; the first of which Mr. B. had an opportunity of seeing the Battas procure from the beds of the rivers, in the same way nearly as in South America. Among the animal tribes, monkeys, elephants, and tigers, are numerous; but there are very few birds.

The Battas Mr. Burton describes as fine, tall, stout, good-looking people, superior in appearance to the generality of the Malays. They have a peculiarly fierce and independent look, are well dressed in cotton cloths, manufactured by the women, and wear English beads as ornaments. 'These people,' he remarks, 'are perfectly independent; they have no idea of their own inferiority to any people on earth, and their carriage and behaviour tell you so. They are very polite in their own way, are good speakers, and know perfectly well how to manage every point of an argument, so as to turn it to their own advantage.'

The Battas have a settled language, which is extensively written and understood, and many neatly executed books. The whole population is estimated at a million, 2 or 300,000 of whom can read. 'I have begun to read their language,' says Mr. B., 'and find there is nothing to fear relative to its acquisition, the character is remarkably simple, and every sound having its representative mark, the language may be pronounced correctly by any person who has acquired the character, though he may not understand what he reads.' Mr. Prince, the Company's Natal resident, drew up a brief account of the religion of these people, at the request of Sir T. S. Raffles, from which it appears to be compounded of the most ridiculous and barbarous superstitions. They do not, however, worship images, but believe in the existence of certain deities, whose attributes indicate a much greater degree of knowledge and civilisation at some former period. Dee Battah Assee Assee is the Creator and Father of all things, and is supposed to have appointed three brothers as his agents to instruct mankind. Bataragourou, the god of justice; Seeree Padah, the god of mercy; but Mahalabhoolan, the third brother, soon disagreed with the other two, separated from them, and propagated tenets directly in opposition to theirs. He is therefore described as the source of 'discord and contention—the instigator of malice and revenge—the inciter of anger—the source of fraud, deceit, lying, hypocrisy, and murder.' He has the chief influence among the Battas, and they acknowledge that petitions are seldom offered to either of the others. The only semblance of a priest among them, is a person named Dattoo, who is skilled in all their superstitions; and there is generally one of these to every village; but the only religious ceremonies the existence of which Mr. Prince could ascertain, appeared to consist in an invocation of the manes of the dead. 'The influence of the Dattoos over the deluded Battas is such,' says Mr. P., 'that they will not engage in any undertaking, however trifling, without first consulting them. They expound all their religious books, and, according to their interpretation, a day is chosen as propitious to the accomplishment of the desired object, whether it be a suit, a journey, or war. The moral conduct of these people appears to be influenced by all the vile passions of an irregular and irritable constitution. Truth is seldom regarded when in the way of their interests or feelings; and honesty is never founded on principle, but on the fear of detection. The general tenor of their lives has obliterated the recollection and practice of the laws of Seeree Padah and Bataragourou, and they have no priesthood or rajah to recal them, or to reprove their obstinate adherence to the principles of Mahalabhoolan, who is certainly no other than the devil.'

One of the amusements of this people is a peculiar and very cruel one, thus described by Mr. Burton. 'In one of the bazars,' he says, 'were about 100 persons amusing themselves with a most cruel game. They drive a small stake into the earth, and round it draw a circle, which they divide into four equal parts; in each of the partitions different individuals put equal sums of money; to the stake is tied a young fowl, whose throat being cut, it flutters about for a short time, and then expires. The person whose money happens to be in the partition where the fowl lies after death, sweeps the stakes. The circle may be divided into as many parts as there are persons who wish to follow the amusement. The man officiating as cut-throat was the imum, or priest, of the place.'

BATTÆ, a people of ancient Germany, formerly inhabitants of what is now called Hesse. Being dissatisfied with their situation there, they settled on the island formed by the Vahalis and the Rhine, which from them took the name of Batavia, or Batavorum Insula. Their government was a mixture of monarchy, aristocracy, and democracy. Their chief was, properly speaking, nothing more than a principal citizen, whose business was rather to advise than to command. The principal men who exercised jurisdiction, and commanded the troops, in their respective districts, were chosen, as well as the kings, in an assembly of the people. A hundred persons, selected from among the people, presided over every county, and acted as chiefs in the different hamlets. The whole nation was, in some measure, an army always in readiness. Each family composed a body of militia, which served under a captain of their own choosing. See BATAVI and BATAVORUM INSULA.

BATTAIL, *v.* & *n.*, BATTAIL'ANT, BATTAIL'OUS, BATTA'LION, BATTA'LIA. Fr. *battaille*, Ital. *battaglia*, Span. *batalla*. From the ancient Saxon beatan, to fight, or to strike. *Battailous* is having the appearance of a battle; *battalia* is the order of battle; and *battalion* signifies the division of an army, and formerly an army itself.

Sir Edward also sone þer gile gan he knowe,
Dight him to *bataile* bone, his trumpes did he blowe.
R. Brunne.

Lest any time it were assail'd,
Ful wel about it was *battailed*,
And round environ eke were set,
Ful many a rich and fair touret.
Chaucer. Romaunt of the Rose.

At many a noble armee hadde he be;
At mortal *battailes*, hadde he ben fiftene;
And foughten for our faith at Tramissene;
In listes thries—and aye slain his foe. *Id.*

Soon after this I saw an elephant,
Adorn'd with bells and bosses gorgeously,
That on his backe did beare (as *batteilant*)
A gilden towre which shone exceedingly.
Spenser. Vision of the World's Vanities.

But deeds of armes must I at last be faine,
And ladies love, to leave so dearely bought?
What need of armes where peace doth aye remaine,
Said he, and *battailes* none are to be fought?
As for loose loves they are vaine, and vanish into nought. *Id.*

He started up, and did himself prepayre,
In sun-bright armes, and *battailous* array;
For with that pagan proud he combatt will that day.
Id.

When sorrows come, they come not single spies,
But in *battalions*. *Shakspeare. Hamlet.*

A fiery region, stretch'd
In *battailous* aspect, and nearer view
Bristled with upright beams innumerable
Of rigid spears and helmets throng'd. *Milton.*

Next morning the king put his army into *battalia*.
Clarendon.

The pierc'd *battalions* disunited fall
In heaps on heaps; one fate o'erwhelms them all.
Pope.

Battalia, an army ranged in order of battle, or ready for engagement. The word seems formed from the Latin batualia, sometimes also written batalia, denoting a sort of military or gladiatorial exercise, as fighting with foils, or tilting at a post. In this sense, we meet with the depth of a battalia; to march in battalia, with the baggage in the middle; to break the battalia, &c. In the Roman battalia, the bastati made the front. It further implies an army or considerable detachment of troops drawn up in order of battle, or in any other proper form to attack the enemy. See Battle.

Battalion, in the British army, is an undetermined body of infantry in regard to number, generally from 600 to 1000 men. The royal regiment of artillery has consisted of ten battalions, exclusive of the invalid or veteran battalion. Sometimes regiments consist each of one battalion only; but if more numerous are divided into several battalions, according to their strength; so that every one may come within the number mentioned. A battalion of one of our marching regiments consists of 1000 and sometimes of 1200 men, officers and non-commissioned included. When there are companies of several regiments in a garrison to form a battalion, those of the eldest regiment post themselves on the right, those of the second on the left, and so on till the youngest falls into the centre. The officers take their posts before their companies, from the right and left, according to seniority. Each battalion is divided into four divisions, and each division into two subdivisions, which are again divided into sections. The companies of grenadiers being unequal in all battalions, their post must be regulated by the commanding officer. See Regiment.

The *Triangular* Battalion of ancient military history, was a body of troops ranged in the form of a triangle, in which the ranks exceeded each other by an equal number of men. If the first consisted of one man only, and the difference between the ranks was only one, then its form was that of an equilateral triangle: and when the difference between the ranks was more than one, its form was an isoscele, having two sides equal, or scalene triangle.

The *Round* Battalion, is that in which the soldiers are ranged in concentric circles. This was much used by the Romans, and called *in orbem*. Cæsar, in his Commentaries, has given many instances.

The *Square* Battalion. M. Folard shows at large, in his book de la Colonne, the weakness of the square battalion, and decries the modern method of ranging battalions so shallow as to render them weak, and unable to support each other: so that they are easily penetrated or broken; an essential fault in tactics. The real strength of a corps, according to this author, consists in its thickness, or the depth of its files, and their connexion and closeness. This depth renders the flanks almost as strong as the front. He adds, that it may be laid down as a maxim, that every battalion ranged deep, and with a small front, will beat another stronger than itself ranged according to the usual method. (Polyb. tom. i. p. 7.) But this opinion of Folard has not been adopted in modern practice; and his theory has been vigorously attacked by French tacticians. They admit the superior strength of his column to that of a modern battalion, if the action were to be decided with pikes and swords; but where fire arms must be used, M. Folard's column is so very ill disposed for this purpose, that it must infallibly be destroyed.

BATTECOLLAH, Batucata, a large open town on the sea coast of the British district of North Canara. The name signifies the round town. It stands in lat. 13° 56′ N., long. 74° 37′ E, on the north bank of a small river, which waters a very beautiful valley, surrounded on every side by hills, and in an excellent state of cultivation. Eight dams are yearly made, at the public expense, in order to water the rice grounds, which are constructed of earth, and only intended to collect the stream. Battecollah contains two mosques, one of which receives an allowance of 100 pagodas from the Company, and the other half as much. Many of the Mahommedans are wealthy, and their commercial speculations extend to different parts of the coast. Here are a great many guddies, or temples, belonging to the followers of Vyas; and two Jain temples, the only remains of sixty-eight that were formerly in the place.

BATTEL, *v.*, *n.* & *adj.*, Bat'tling, Bat'table, Bat'tler, Bat'ful. It may be from the Sax. batan, to bait, says Mr. Todd. But Mr. Stevens thinks, that *bat* is an ancient English word for increase. Perhaps it is from

the Goth. *ga-batnan*, to advantage. *Batful* is a compound of the two participles, *bat* and *full*. The verb appears to be founded upon the noun, and to signify to grow fat, to get flesh, to render fertile and fruitful. *Battable*, is capable of cultivation. To *battel* (the verb neuter) is to stand indebted in the college books at Oxford, for what is expended at the buttery in the necessaries of eating and drinking. At Cambridge *size* is used in a similar sense. Hence in the former university there is a student named a *batteler* or *battler*; in the latter a sizer. At Eton, *battel* is used to describe the small portion of food, which, in addition to the college allowance, the pupils receive from their dames. But in every application the word has reference to increase.

This is the grayne of mustard sede whiche when it was so fine and so little that the unlearned sort of English mē could scarce possibly fele or see it, ye of your exceeding charitie and zele towards your country folkes did in such wise helpe to some in the field of Englande, and did so cherishe with the sable *batleing* yearth of the paraphrase, that where before it was in the eyes of the unlettered, the least of al sides, it is now shot up, and growē much larger in bredth thē any other herbe of ye field. *Udall. Luke, Preface.*

The best advizement was of bad, to let her
Sleepe out her fill, without encumberment;
For sleepe (they said) would make her *battel* better.
Spenser. Faerie Queene.

For in the church of God sometimes it commeth to pass, as in over *battle* grounds, the fertile disposition whereof is good; yet because it exceedeth due proportion, it bringeth forth abundantly, through too much ranknesse, things lesse profitable.
Hooker. Eccles. Pol.

Massinissa made many inward parts of Barbarie and Numidia in Africk (before his time incult and horrid) fruitful and *battable* by this means.
Burton's Anatomy of Melancholy.

Thomas Sorrocold, or Sorocold, was born in Lancashire, became a *battler* or student of Brazen-nose college, in 1578, aged 17 years or thereabouts.
Wood. Athenæ, Oxon.

Eat my commons with a good stomach, and *battled* with discretion. *Puritan. Malone's Supplement.*

The *batful* pasture fenc'd, and most with quickset mound,
The sundry sorts of soil, diversity of ground.
Drayton. Polybion.

BATTEL, in law, or TRIAL BY WAGER OF BATTEL, now disused. See APPEAL.

BATTEL ABBEY. See BATTEL.

BATTELMA, a town of Syria, the ancient Daphne; the scene, according to classical writers, of the transformation of the nymph of that name into a laurel. At a short distance these trees are numerous. It is said that temples dedicated to Daphne, Apollo, and Diana, stood on this spot; and that Gallus built a church at a later period, which Dr. Pococke conjectures may have been the remains of that of Apollo. He saw the remains of a Christian church, with Greek inscriptions on the walls, and supposed that it might have received the bones of Babylas, bishop of Antioch, and those of several other martyrs. There are fountains, and the remains of foundations, walls, and aqueducts, about Battelma, which is five miles south-west of Antioch.

BATTELY (John), an English divine, born at St. Edmund's Bury, in Suffolk, in 1647, and educated at Trinity college, Cambridge. Archbishop Sancroft made him his chaplain, and gave him the rectory of Adisham in Kent, and the archdeaconry of Canterbury. He wrote Antiquitates Rutupinæ, and Antiquitates Edmundburgi. He died in 1708.

BAT'TEN, *v. a.* & *n.* A word, says Johnson, of doubtful etymology. Probably of the same derivation as battle, as it seems to have succeeded it, and to have the same meaning. It is, however, with its predecessor, growing fast into desuetude. It signifies to fatten, or make fat; to feed plenteously; to fertilise; and to live in indulgence.

CORIO. Follow your function, go and *batten* on cold bits. *Shakspeare.*

A man may *batten* there in a week only, with hot loaves and butter, and a lusty cup of muscadine and sugar at breakfast, though he make never a meal all the month after. *Ford. Perkin Warbeck.*

We drove afield,
Batt'ning our flocks with the fresh dews of night.
Milton.

Burnish'd and *batt'ning* on their food, to show
The diligence of careful herds below. *Dryden.*

Twa mice, full blythe and amicable,
Batten beside erle Robert's table. *Prior.*

The meadows here, with *batt'ning* ooze enrich'd,
Give spirit to the grass; three cubits high
The jointed herbage shoots. *Philips.*

While ardent Sirius shoots a thirsty ray,
And autumn yet withholds retreating day,
They range at large, and gambol through the stream,
Frisk on the beach, or *batten* in the beam. *Brooke.*

Go thou; the moan of woe demands thine aid;
Pride's licens'd outrage claims thy slumbering ire;
Pale genius roams the bleak neglected shade,
And *battening* avarice mocks the tuneless lyre.
Beattie.

BATTEN is chiefly used by joiners, in speaking of doors and windows of shops, &c. which are not framed of whole deal, &c. with stiles, rails, and pannels like wainscoat; but are made to appear as if they were, by means of these battens, bradded on the plain board round the edges, and sometimes cross them and up and down.

BATTENS OF THE HATCHES, in sea language, are nailed along the tarpaulings, and serve to keep their edges close down to the hatches, in order to prevent the water which washes over the deck from penetrating into the lower apartments of the ship.

BATTENBERG, a small town of Germany, in the grand duchy of Hesse, on the Eder, with an old castle, a bailiwic, and 720 inhabitants. Twenty-five miles north of Giessen.

BATTENHAUSEN, an ancient town of Germany, in the territory of the Catti.

BATTENKIL, a small river of North America, in the state of Vermont, which rises in Bennington county, and running south-west, afterwards turns directly west into the state of New York, where it falls into the Hudson, nearly opposite to Saratoga.

BAT'TER, *v.* & *n.*, BAT'TERER, BAT'TERING, BAT'TERY. Fr. *battre*; Ital. *battere*; Germ. *batten*; of the same etymology as *battail*, viz. ancient Saxon *beatan*: applied to things it signifies to beat down, to shatter. The substantive designates a mixture of several

ingredients beaten together with some liquor; so called from its being so much beaten. Applied to persons, it describes thet urmoils and violence through which they have passed, and the worn-out condition in which they are left.

Man stondeth the sinne of contumelie or strif and cheste, and *battereth* and forgeth by vilians reprevinges. *Chaucer. The Persones Tale.*

When Cupid scaled first the fort
Wherein my hart lay wounded sore,
The *battry* was of such a sort,
That I must yield or die therefore.
Horace. Uncertain Authors.

For now were the walls beaten with the rams, and many parts thereof shaken and *battered:* and at one place above the rest, by continual *batterie* there was such a breach, as the towne lay open and naked to the enemy. *Holland's Livius,* fol. 397.

Moreover take but three sextares or quarts of it being steeped, and it will yield a measure called modius, of thicke grewel or *batter,* called in Latin puls. *Id. Plinie,* vol. i. p. 558.

They all that charge did fervently apply,
With greedy malice and importune toyle,
And planted there their huge artillery,
With which they daily made most dreadful *battery.*
Spenser.

Sconce call you it? so you would leave *battering.* I had rather have it a head. *Shakspeare.*

Many men neglect the tumults of the world, and care not for glory, and yet they are afraid of infamy, repulse, disgrace, they can severely contemn pleasure, bear grief indifferently: but they are quite *battered* and broken with reproach and obloquy.
Burton, Anat. Mel.

Others to a city strong,
Lay siege encamp'd; by *battery,* scale, and mine,
Assaulting. *Milton.*

Crowds to the castle mounted up the street,
Batt'ring the pavement with their coursers' feet.
Dryden.

One would have all things little, hence has try'd
Turkey poults fresh from th' egg in *batter* fry'd.
King.

If you have a silver saucepan for the kitchen use, let me advise you to *batter* it well; this will shew constant good housekeeping.
Swift's Directions to the Cook.

As the same dame, experienc'd in her trade,
By names of toasts retails each *batter'd* jade. *Pope.*

The ordinary machines invented to *batter* or undermine the walls, were rendered ineffectual by the superior skill of the Romans. *Gibbon.*

Ba'tter, *v. n.* A word used only by workmen.

The side of a wall, or any timber, that bulges from its bottom or foundation, is said to *batter.* *Moxon.*

Bat'ter. In law, a violent striking of any man. In an action against a striker, one may be found guilty of the assault, yet acquitted of the *battery.* There may therefore be assault without *battery;* but *battery* always implies an assault.

Why does he suffer this rude knave now to knock him about the sconce with a dirty shovel, and will not tell him of his action of *battery?* *Shakspeare.*

Sir, quo' the lawyer, not to flatter ye,
You have as good and fair a *battery*
As heart can wish, and need not shame
The proudest man alive to claim. *Hudibras.*

Battering, in the military art, is the attacking a fortified place or work with heavy artillery. To batter in breach, is to play furiously on a work, as the angle of a half moon, to demolish and make a gap in it. In doing this, they never fire a piece at the top, but all at the bottom, from three to six feet from the ground. See Battery.

Battering Ram, in antiquity, a military engine used to batter and beat down the walls of places besieged. It is said to have been invented by Artemorus of Clazomene, a Greek architect, who flourished A. A. C. 441. It is thus described by Josephus: A vast beam, like the mast of a ship, strengthened at the one end with a head of iron resembling that of a ram, whence it took its name, was hung by the middle with ropes to another beam, which lay across two posts; and hanging thus equally balanced, it was by a great number of men drawn backwards and pushed forwards, striking the wall with its iron head. But this engine did most execution when it was mounted on wheels, which is said to have been first done at the siege of Byzantium under Philip of Macedon.

Battering Ram, in military affairs. See Aries.

Battering Ram, in heraldry, a bearing or coat of arms resembling the military engine above described.

BATTERSEA, a village in Surrey, which gives the title of baron to the St. John family. Population about 5000. In the church is a monument of Henry St. John, viscount Bolingbroke, who was born here, and his second wife, who was a niece of Madame de Maintenon. On another to the memory of Sir Edward Winter, who lived in the neighbourhood, it is related that being a captain in the East India company's service, in the reign of Charles II., he was attacked in the woods by a tiger, when, placing himself on the side of a pond, as the tiger flew at him, he caught him in his arms, and falling back with him into the water, got upon him and kept him down till he was drowned. On the site of Bolingbroke House, which was pulled down in 1775, has been erected a horizontal windmill of very large dimensions. The height of the main shaft is 120 feet, and the diameter at the bottom fifty-two. In 1771, a wooden bridge was built over the Thames at Battersea, under the direction of Mr. Holland, at an expense of £22,500.

Battery, in electricity, is a combination of coated surfaces of glass, commonly jars, so connected together, that they may be charged at once, and discharged by a common conductor. Mr. Gralath, a German electrician, was the first who contrived to increase the shock, by charging several phials at the same time. Dr. Franklin, after he had analysed the Leyden phial, and found that it lost at one surface the electric fire which it received at the other, constructed a battery of panes of large sash glass, coated on each side, and connected in such a manner that the whole might be charged together, and with the same labor as one single pane; and by bringing all the giving sides into contact with one wire, and all the receiving sides with another, he contrived to unite the force of all the plates, and to discharge them at once. Dr. Priestley describes a still more complete battery, of which he says

that after long use he sees no reason for wishing the least alteration in any part of it. This battery consists of sixty-four jars, each ten inches long, and two inches and a half in diameter, coated within an inch and a half of the top; forming in the whole thirty-two square feet of coated surface. The wire of each jar has a piece of very small wire twisted about the lower end of it, to touch the inside coating in several places; and it is put through a pretty large piece of cork, within the jar, to prevent any part of it from touching the side, which would tend to promote a spontaneous discharge. Each wire is turned round, so as to make a hole at the upper end; and through these holes a pretty thick brass rod with nobs passes, each rod serving for one row of the jars. The communication between these rods is made by laying a thick chain over them, or as many of them as may be wanted. The bottom of the box, in which the jars stand, is covered with a plate of tin, and a bent wire touching the plate passes through the box, and appears on the outside. To this wire any conductor designed to communicate with the outside of the battery is fastened, and the discharge is made by bringing the brass knob to any of the knobs of the battery. When a very great force is required, the quantity of coated surface may be increased, or two or more batteries may be used. But the largest and most powerful battery, is that which was employed by Dr. Van Marum, to the amazing large electrical machine constructed for Teyler's Museum at Haarlem. This grand battery consists of a great number of jars, coated as above, to the extent of about 130 square feet; and the effects of it, which are truly astonishing, are related by Dr. Van Marum, in his description of this machine, and of the experiments made with it, at Haarlem, in 1785.

Battery Galvanic. See Galvanism.

Battery, in law, is the unlawful beating of another in breach of the peace. The least touching of another's person wilfully, or in anger, is a battery; for the law cannot draw the line between different degrees of violence, and therefore totally prohibits the first and lowest stage of it; every man's person being sacred, and no other having a right to meddle with it, in the slightest manner. Upon a similar principle, the Cornelian law, de injuriis, prohibited pulsation as well as verberation; distinguishing verberation, which was accompanied with pain, from pulsation, which was attended with none. But battery is in some cases justifiable or lawful; as, first, where one who hath authority, a parent or master, gives moderate correction to his child, his scholar, or his apprentice: second, in self-defence; if one strike another, or only assault him, he may strike in his own defence; and, if sued for it, may plead, son asault demesne, that it was the plaintiff's original assault that occasioned it: third, in defence of goods or possessions, if one endeavour to deprive another of them, he may lay hands upon him to prevent him; and in case he persist with violence, may beat him away: fourth, in the exercise of an office, as that of church-warden or beadle, a man may lay hands upon another to turn him out of church, and prevent his disturbing the congregation: and if sued for this or the like battery, he may set forth the whole case, and plead that he laid hands upon him gently, molliter manus imposuit, for this purpose. On account of these causes of justification, battery is defined to be the unlawful beating of another: for which the remedy is, as for assault, by action of trespass vi et armis; wherein the jury will give adequate satisfaction in damages.

Battery, in metalline manufactures, or battery works, includes pots, sauce-pans, kettles, and the like vessels, which, though cast at first, are to be afterwards hammered or beaten into form. Some make battery for the kitchen, batterie de cuisine, comprehend all utensils for the service of the kitchen, whether of iron, brass, copper, or other matters. Others take the term in a narrower sense, and restrain it to utensils of brass or copper. A society for the mineral and battery work of England, was incorporated by queen Elizabeth.

Battery, in the military art, is a parapet thrown up to cover the gunners, and men employed about the guns, from the enemy's shot. This parapet is cut into embrasures, for the guns to be fired through. The height of the embrasures on the inside is about three feet; but they slope lower to the outside. Their width is two or three feet; but they open to six or seven on the outside. The mass of earth betwixt two embrasures, is called the merlon. The platform of a battery is a floor of planks and sleepers, to keep the wheels of the guns from sinking into the earth; and is always made sloping towards the embrasures, both to hinder the recoil, and to facilitate the bringing back of the gun. The powder magazines, from which the batteries are to be served, ought not to be far distant from them, nor from each other. The general one about sixty feet in the rear of the battery, and the small ones about half that distance. The magazines are made either to the right or left of the battery, as the officer may think fit for deceiving the enemy: they are commonly built five feet under ground; taking care to secure the sides and roof with boards, and cover them with earth, clay, or some such substance, lest fire should get in to the powder. The balls are generally piled up beside the merlons, between the embrasures, to be in readiness. Though in England engineers are employed to construct batteries, the officers of artillery, who are daily practising the different branches of their profession, would seem to be the fittest persons to direct the situation and to superintend the construction of their own batteries. Batteries are of various kinds, viz.

Batteries Cross, are batteries which play athwart one another upon the same object, forming there an angle, and causing more destruction; because what one bullet shakes the other beats down.

Battery a Ricochet is adapted to the method of ricochet, or duck and drake firing, first invented by Vauban, at the siege of Aeth, in 1692: the guns are loaded with small charges, and elevated so as to fire over the parapet; and the shot is thus made to bound along the opposite rampart, like a stone skimmed along the water. In a

siege they are generally placed at about 300 feet before the first parallel, perpendicular to the faces produced, which they are to enfilade. This method has since been applied to mortars and howitzers with great success, which are of singular use in action to enfilade the enemy's ranks; for when the men perceive the shells bounding about with their fuzes burning, expecting them to burst every moment, the bravest among them will hardly have courage to wait their approach.

Battery Boxes, square boxes to be filled with earth or dung, for the purpose of making batteries, where gabions and earth cannot be had.

Battery, Comrade, or Joint Battery, is when several guns play at the same time upon one place.

Battery, Coffer, is that where the sides of the wall and merlons only are formed of fascines, and all the cavities or included spaces filled with earth.

Battery, Covered, or Masked, is when the guns and men are covered by a bank made of fascines and earth, of about eighteen or twenty feet thick, and seven or eight feet high. The guns are generally from nine to eighteen pounders; sometimes twenty-four pounders are used.

Battery D'Enfilade, is one that scours or sweeps the whole length of a straight line.

Battery de Revers, that which plays upon the rear of the troops.

Battery en Echarpe, is that which plays obliquely.

Battery en Rouage, is that used to dismount the enemy's cannon.

Battery Nails, pins used for fastening the planks that cover the platforms, and not made of iron but of the toughest wood, because iron might be dangerous, by the iron-work of the wheels striking against them in recoiling, &c.

Battery of a Camp is usually surrounded with a trench and pallisades, at the bottom, and with a parapet on the top, having as many holes as there are pieces of artillery, and two redoubts on the wings, or places of arms, capable of covering the troops, which are appointed for their defence.

Battery of Mortars differs from a battery of guns; for it is sunk into the ground, and has no embrasures, it being designed to throw its charge up into the air. It consists in a parapet of about twenty feet thick, seven and a half in front, and six in the rear; of a berme about three feet broad, according to the quality of the earth; of a ditch twenty-four feet broad at top, and twenty at the bottom. The beds are not made sloping like the platforms for guns, but exactly horizontal: they should be nine feet long, and six broad, with eight feet betwixt them, and nine from the part.

Battery, Open, is a number of cannon, generally field-pieces, ranged a-breast of one another, on a small natural elevation of the ground, or an artificial bank of about a yard or two high.

Battery, Sunk or Buried, batterie en terre, is that whose platform is sunk into the ground, so that there must be trenches cut in the earth, before the muzzles of the guns, for them to fire out at.

Battery, Floating, a sea battery of mortars, generally composed of old ships considered unfit for active service, properly strengthened by balks and other timbers. Several improvements have been attempted on floating batteries in this country. Among others, a mortar battery, for the bombardment of the enemy's ports, has been invented by Sir W. Congreve, which is proof both against shells and red-hot balls. It is so contrived that the masts and sails can be securely disposed of in less than a quarter of an hour; so that it then presents upon the water nothing but a mere hull, with sloping sides, which is rowed by forty men, under cover of the bomb-proof, and may, by the peculiar construction of the masts and rigging, be brought under sail again as expeditiously as dismantled. The rudder and moorings are wholly under water, and protected by the bomb-proof. The battery is armed with four large mortars, for bombardment, and four forty-two-pounder carronades, for self-defence; though, from being covered with plates and bars of iron, she can neither be set fire to nor be carried by boarding. Four such vessels, though not more than 250 tons burden each, and drawing less than twelve feet water, would throw upwards of 500 shells into any place in one tide, and with the greatest precision; both because from their construction they have nothing to apprehend from approaching the enemy's batteries, and because from the peculiar contrivance of the mortar-beds, the elevation of the mortars is not affected by the rolling or pitching of the vessel.

BATTEURS D'Estrade, scouts, or horsemen, sent out before, and on the wings of an army, two or three miles, to make discoveries, of which they are to give an account to the general.

BATTIE (William), M. D., was born in Devonshire, in 1704. He received his education at Eton; and in 1722 was sent to King's College, Cambridge. His own inclination prompted him to the law; but his finances could not support him at one of the inns of court. He therefore turned his attention to physic, and first entered upon the practice of it at Cambridge; where in 1729 he gave a specimen of an edition of Isocrates, which in 1749 he completed in 2 vols. 8vo. He afterwards removed to London; and in 1738 or 1739 fulfilled by marriage a long engagement to a daughter of Barnham Goode, the under master of Eton, who is honored with a place in the Dunciad, for having abused Pope, in The Mock Æsop. A cousin now left the doctor £30,000. In the dispute which the college of physicians had with Dr. Schomberg, about 1750, Battie took a very active part. In 1751 he published De Principiis Animalibus Exercitationes, in Coll. Reg. Medicorum, in three parts; which were followed in 1752 by a fourth. In 1757, being physician to St. Luke's, he published A Treatise on Madness, in quarto; and in 1762 Aphorismi de cognoscendis et curandis Morbis nonnullis, ad principia accommodati. In Feb. 1762 he was examined before a committee of the House of Commons, on the state of the private mad-houses in this kingdom, and received in their printed report a testimony honorable to

his abilities. In 1776 he was seized with a paralytic stroke, of which he died June 13, aged seventy-five.

BATTIFOLIUM, or BATTIFOLLUM, a kind of tower or defence, frequently mentioned by Latin historians of the middle age. It seems to have been made of wood, and erected on sudden occasions.

BATTING STAFF, the same with BATLET.

BATTISTA (Franco), a celebrated painter, born at Venice, was one of the disciples of Michael Angelo, whose manner he followed so closely, that, in the correctness of his outlines, he surpassed most of the masters of his time. His paintings are pretty numerous, and widely dispersed; but his coloring being very dry, they are not much more esteemed than the prints he etched. He died in 1561.

BATTITURA, the scales that fly off from hot iron, when newly taken out of the fire and beaten on the anvil.

BATTLE, *v.* & *n.* } Derivation, Old Saxon,
BAT'TLEMENT, } beatan. See BATTAIL,
BAT'TLEMENTED, } to fight; also to prepare
BAT'TLING. } for fight. The substantive is used in various senses; it sometimes is applied to an encounter between opposite armies; and to a body of forces, or division of an army; to the main or middle body of an army, says Nares, between the van and rear. Crabbe traces the verb to the Latin *batuo*, and to the Hebrew *abat*, to beat, signifying a beating. The words *battle*, *combat*, and *engagement*, are frequently, but incorrectly, used as synonymes. *Battles* are fought between armies only. *Combats* are entered into between individuals, whether of the brute or human species. *Engagements* are confined to no particular membe only to such as are engaged.

If houses strongly built,
And towers *battled* hie,
By force of blast be overthrown,
When Eol's impes doe flie.
Turberville.

And he is bred out of that bloody strain
That haunted us in our familiar paths:
Witness our too much memorable shame,
When Cressy *battell* fatally was struck,
And all our princes captiv'd by the hand
Of that black name; Edward, black prince of Wales.
Shakspeare.

The English army, that divided was
Into two parts, is now conjoined in one;
And means to give you *battle* presently. *Id.*

The vaward, Zerbin hath in government,
The duke of Lancaster the *battell* guides,
The duke of Clarence with the rereward went.
Harrington's Ariosto.

The king divided his army into three *battles*; whereof the vanguard only, with wings, came to fight.
Bacon.

Sicinius Dentatus fought in an hundred *battles*; eight times in single combat he overcame, had forty wounds before, was rewarded with 140 crowns.
Anat. Mel.

He ended frowning, and his look denounc'd
Desp'rate revenge, and *battel* dangerous
To less than gods. *Milton.*

Go Michael, of celestial armies prince,
And thou in military prowess next,
Gabriel, lead forth to *battle* these my sons
Invincible; lead forth my armed saints;
By thousands, and by millions. *Id.*

Just so, by our example, cattle
Learn to give one another *battle*. *Hudibras.*

Through this we pass
Up to the highest *battlement*, from whence
The Trojans threw their darts. *Denham.*

'Tis ours by craft and by surprise to gain:
'Tis yours to meet in arms, and *battle* in the plain.
Prior.

We receive accounts of ladies *battling* it on both sides. *Addison.*

Should he go farther, numbers would be wanting
To form new *battles* and support his crimes. *Id.*

I cannot find my hero; he is mixed
With the heroic crowd that now pursue
The fugitives, or *battle* with the desperate.
Byron

There is given
Unto the things of earth, which time hath bent,
A spirit's feeling, and where he hath lent
His hand, but broke his scythe, there is a power
And magic in the ruined *battlement*;
For which the palace of the present hour
Must yield its pomp, and wait till ages are its doom
Id

Wave high your torches on each crag and cliff—
Let many lights blaze on your *battlements*—
Shout to them in the pauses of the storm,
And tell them there is hope——
And let our deep-toned bell its loudest peals
Send cheerly o'er the deep——
'Twill be a comfort to the wretched souls
In their extremity. All things are possible;
Fresh hope may give them strength, and strength deliverance. *Maturin*

BATTLES, ANCIENT. The ancients never joined battle without much ceremony and preparation; as taking auguries, offering sacrifices, haranguing the soldiers, giving the word, or a tessera, &c. The signals were, sounding the classicum or general charge, and displaying a peculiar flag, called by Plutarch a purple robe. To which may be added, singing pæans, raising military shouts, and the like. A Roman legion, ranged in order of battle, consisted of hastati, placed in the front; of principes, who were all old experienced soldiers, placed behind the former; and of triarii, heavy armed with large bucklers, behind the principes. The hastati were ranked close: the ranks of the principes were much opener, so that they could receive the hastati; and those of the triarii opener still, insomuch that they could receive both the principes and the hastati within them, without any disorder, and still facing the enemy. When therefore the hastati found themselves unable to stand the enemy's charge, they retired gently within the principes, where joining with them, they renewed the combat. If these found themselves too weak to sustain the enemy, both retired among the triarii, where rallying, they formed a new corps, and charged with more vigor than ever. If these failed, the battle was lost; the Romans had no farther resource. The moderns are unacquainted with this method of inserting or embattling one company into another; without which the former cannot be well succoured or defended, and their places taken by others; which was a thing the

Romans practised with great exactness. For the velites, and in later times the archers and slingers, were not drawn up in this regular manner, but either disposed of before the front of the hastati or scattered up and down upon the void spaces of the hastati, or sometimes placed in two bodies in the wings. These always began the combat, skirmishing in flying parties with the foremost troops of the enemy. If they were repulsed, which was usually the case, they fell back to the flanks of the army, or retired again in the rear. When they retired, the hastati advanced to the charge. As to the cavalry, it was posted at the two corners of the army, like the wings on a body; and fought sometimes on foot, sometimes on horseback. The auxiliary forces composed the two points of the battle, and covered the whole body of the Romans. Other less usual forms of battle among the Romans were the cuneus, or wedge; globus, or round form; forfex, or pair of sheers; turris, or an oblong square figure; serra, or saw. The Greeks were inferior to the Romans in marshalling their armies for the battle, as they drew up their whole army in a front, and trusted the success of the day to a single force. They had three forms of battle for the horse, viz. the square, the wedge, and the rhombus or diamond form. The first held best for the defensive; the latter for the offensive; the wedge being preferred as bringing most hands to fight.

The Romans had their particular days, called præclares dies, wherein alone it was lawful to join battle; and others wherein it was unlawful, called dies atri. The Athenians, by the ancient laws of their country, were not to draw out their forces for battle till after the seventh day of the month. Lucian relates of the Lacedemonians, that, by the laws of Lycurgus, they were not to fight before full moon. Among the Germans it was reputed an impiety to fight in the wane of the moon; and Cæsar tells us that Ariovistus was beaten by him, because, contrary to the laws of his country, he had fought when the moon was in her wane. The German soldiers were intimidated with the apprehension, and afforded Cæsar an easy victory; acie commissa, impeditos religione hostes vicit. Jerusalem was taken by Pompey in an attack on the sabbath day, when, by the superstitious notions of the Jews, they were not allowed even to defend themselves. The Romans did not carry their superstition so far; their atri dies were only observed in respect of attacking; no day was too holy for them to defend themselves in. Among the ancients, we find frequent instances of battles in the night; it was by moon-light that Pompey beat Mithridates, and Scipio, Asdrubal and Syphax.

The Greeks notified the places of their battles and victories by adding the word Νικη; whence Nicomedia, Nicopolis, Thessalonica, &c. The ancient Britons did the like, by adding the word Mais; whence Maisseveth, Malmaisbury, &c. The English by the word field.

BATTLE, or BATTEL, a market town in the hundred of Battle, Hastings rape, Sussex, twenty-six miles south-east from Tunbridge, and fifty-six south from London; containing 2852 inhabitants. The ancient name was Epiton, but the famous battle of Hastings gave it its present name, in 1066; the conqueror first landed near Pevensey, a few miles distant. In memory of this important day, William founded a celebrated abbey, at Heathfield, or Headfield plain, called Battle-Abbey; one of those religious houses which had, formerly, the privilege of sanctuary. From its remains it appears to have been very magnificent, they being nearly a mile in circumference: its abbot was mitred. The gate-house is entire, and is converted into a sessions' house. On one part of the site of the abbey stands the family mansion of the Websters. The incumbent of the church is called the dean of Battle. Here is a charity school for forty boys. At no great distance is Beacon-hill, formerly called Standard-hill; where the standard of the conqueror was first planted. The town has long been famous for making the best gunpowder in Europe. The market is on Thursday, till 1600 it was held on Sunday: it has also a very large market on the second Tuesday in every month.

BATTLE-AXES were a principal part of the offensive armour of the Celtæ. At the siege of the Roman Capitol by the Gauls, under Brennus, we find one of the most distinguished of their warriors armed with a battle-axe. And Ammianus Marcellinus, many centuries afterwards, describing a body of Gauls, furnishes them all with battle-axes and swords. Some of the weapons have been found in the sepulchres of the Britons, on the downs of Wiltshire, and in the north of Scotland. Within these four or five centuries the Irish went constantly armed with an axe. At the battle of Bannockburn, king Robert Bruce clave an English champion down to the chine at one blow with a battle-axe. The axe of Lochaber remained a formidable implement of destruction in the hands of the Highlanders, nearly to the present period; and it is still used by the city-guard of Edinburgh, in quelling mobs, &c.

BATTLE DYKES, a place in the parish of Oathlaw, in Angusshire, where there are the remains of a Roman camp, and a via militaris connecting it with another in the parish of Inverarity. They are supposed to have been erected by Agricola.

BATTLE-FAULD, a place in Aberdeenshire, in the parish of Longside, where there are a great number of tumuli and other evidences, as well as the name, confirming the tradition of its having been the scene of a foreign invasion.

BATTLEFIELD, a small place in Shropshire, about five miles east of Shrewsbury, distinguished as the scene of the memorable battle in which Henry IV. overthrew Hotspur's rebellion, in 1402, in memory whereof he founded a collegiate church, part of which is still used. A mound adjoining the church-yard, marks the burial place of the slain; and a plot of ground called King's Croft distinguishes the place on which the royal tent was pitched.

BATTOL'OGIZE, BATTOL'OGIST, BATTOL'OGY. } Fr. *battologie*; from the Greek βαττολογια which means to do as Battus did, and which is described by Suidas in these words βαττολογια η Πολυλογια, be-

gy, is the multiplying of words, &c. Hesychius explains it 'empty, idle, unseasonable discourse;' and the translation of our Bible well expresses it by 'vain repetitions.'

After the eastern mode, they wagged their bodies, bowing their heads, and *battologizing* the name Allough Whoddaw and Mahumet very often.
Sir T. Herbert's Travels, p. 191.

BATTON, in merchandise, a name given to certain pieces of wood or deal for flooring or other purposes.

BATTON, BATTUNE, or BASTON, Fr. bâton, in heraldry, a staff truncheon, used as an abatement in coats of arms to denote illegitimacy, thus:

BATTORY, a name given by the Hans Towns to their magazines or factories abroad. The chief of these battories are those of Archangel, Novogorod, Bermen, Lisbon, Venice, and Antwerp.

BATRACHUS, in ichthyology, a species of silurus, found in Asia and Africa. The dorsal fin is single, and contains sixty rays; beards of the mouth eight. Lin. Mus. Fr.—The tail is entire.

BATTUS, a general of the Celti, who, according to Camden and Boetius, gave the first check to the Roman conquests, under Augustus; but, being routed in the reign of Tiberius, part of them settled at the mouth of the Rhine, where from him the country was named Batavia.

BATTUS, an order of ci-devant penitents at Avignon, and in Provence, whose piety carried them to exercise severe discipline upon themselves both in public and private.

BATTUS, in the heathen mythology, a herdsmen, whom Mercury turned into a touch-stone, for discovering, for a bribe, what he had promised to conceal.

BATTUTA, in the Italian music, the motion of the hand or foot in keeping or beating time. Among Italian musicians, a battuta imports, in measure, or beating each time equally. This usually occurs after what they call recitativo, which is rather declaiming than singing, and in which little or no measure is observed.

BATUA, BUTUA, BUTHOE, or BUTHOECE, in ancient geography, a town of Dalmatia situated on the Adriatic; now called BUDOA; which see.

BATUALIA, from batuere, Lat. to fence, the exercise of those who learned to fence.

BATUATORES, in antiquity, fencers.

BATUDA, a method of fishing mentioned in some middle age writers, wherein the fish are driven by beating the water with poles, till flocking into one place, they are the sooner caught.

BATTUECAS, LAS, a territory of Spain, in the province of Leon, almost insulated amid the high mountains of the bishopric of Coria, fifty miles distant from Salamanca. It forms a sort of valley, a league in length, the inhabitants of which are supposed by some writers to have remained for ages unknown to the rest of Spain.

BATURIN, a town of European Russia, in the Ukraine, on the river Sem, now in the government of Czernigov. The castle was formerly the residence of the hetman, or commander-in-chief of the Cossacks. On the desertion of the hetman Mazeppa to Charles XII. of Sweden, in 1708, the town was taken by the Russians, sacked and burned, and all its inhabitants put to the sword. The empress Elizabeth made a perpetual grant of it, with part of the surrounding country, to the hetman Rasumoski, under whom the houses were rebuilt. It is eighty miles E. S. E. of Czernigov, the capital of the province.

BATURIUS. See BACURIUS.

BATUS, בת, Heb. an Hebrew liquid measure, containing seventy-three sextaries.

BATTU (PULO BATU).—An island off the western coast of Sumatra, situated immediately to the southward of the equinoctial line. In length forty miles, by ten the average width. Their exports are cocoa-nuts, oil, and sivallo or sea slug. It is largely wooded, and the inhabitants are subject to the Rajah of Buluam.

BATTY or BHATTI, the country of the Batties, or Bhatties, bounded on the north by the Punjab and the river Sutuleje, east by the district of Hurrianah, west by the desert, and south by Bicanere. From north to south it extends about 150 miles, and from east to west about 100, comprehending part of the provinces of Lahore, Delhi, and Ajmeer.

The productive part of the country is along the banks of the river Cuggur, from the town of Futtehabad to Batneer. The land within the influence of the inundations of this river produces wheat, rice, and barley, but the remainder of the Bhatty country, owing to a scarcity of moisture, is sterile and unproductive. The Cuggur is afterwards lost in the sands to the west of Batneer, though it is said formerly to have joined the Sutuleje in the vicinity of Ferozepoor.

The capital is Batneer; the other towns of note are Arroah, Futtehabad, Sirsah, and Ranyah. There is but little commerce carried on in this country, the inhabitants being more addicted to thieving than industrious pursuits. With the exception of the sale of their surplus grain, ghee, and cattle, the Batties have little intercourse with the neighbouring states. Their imports are coarse white cloth, sugar, and salt, but the trade is inconsiderable. The Bhatties are properly shepherds. Their morals are very indifferent, their neighbours describing them as cruel, savage, and ferocious thieves from their birth. The females are allowed to appear in public unveiled, and without any of that concealment so common over Hindostan.

BATZ, BATZEN, BAT, or BATE, in commerce, a small copper coin, mixed with a slight portion of silver, current in parts of Germany, and in Switzerland, and varying in value according to its alloy.

BAVAR, or BAUER, or BOUWER (John William), was born at Strasburgh in 1610, and became a disciple of Frederick Brentel. He had great genius, but the liveliness of his imagination hindered him from studying nature, or the antique, in such a manner as to divest himself of his German taste, though he went to

Rome to improve himself. In Italy he applied himself entirely to architecture, as far as it might contribute to the enrichment of his landscapes, which were his favorite subjects; and for his scenes and situations, he studied the rich prospects about Frescati and Tivoli. He was fond of introducing battles, marchings of armies, skirmishes, and processions; but never arrived at a grandeur of design; nor could he ever express the naked figure. His pencil however was light, his composition good, and his general expression beautiful. He painted in water-colors on vellum; his coloring is glowing, but his drawing is incorrect. He etched from his own ideas numerous designs from Ovid's Metamorphoses, very much in the style and spirit of Callot, and died at Vienna in 1640.

BAVARIA, now one of the principal secondary states of Germany, was derived from a circle of the same name, bounded by Franconia and Bohemia on the north, Austria on the east, Tyrol on the south, and Suabia on the west. The original circle included a territory of 16,500 square miles, covered with a population of 1,300,000 inhabitants, and before the dismemberment of the German empire, in 1806, formed one of its great divisions. The numerous states which comprised it were formed into two divisions, governed by the ecclesiastical and secular benches, the former including the archbishop of Saltzburg, the bishops of Ratisbon, Passau, and Freysingen, the princely provostship of Berchtolsgaden, with the abbeys of St. Emerau, Nieder and Ober Munster, in the city of Ratisbon. The latter consisted of the elector of Bavaria, the dukes of Neuburg and Saltzburg, the Landgrave of Leuchtenberg, the prince of Steinstein, the counts of Haag and Ortenburgh, with the lords of Ehrenfels, Saltzburg, Pyrbaum, Hohen-Waldeck and Breiteneck, together with a representative from the imperial town of Ratisbon.

The greater part of this circle belonged to the elector, who was at that time one of the most powerful princes of Germany; and before the French revolution wielded the imperial authority, not only over the countries of the secular bench, already mentioned, but over the lordships of Wiesenstein, Meindilheim, and Schwabach, in Suabia; most of the country of Erbach, in Franconia; the palatinate of the Lower Rhine, in the circle of that name; the principalities of Simmern, Lautern and Veldenz; two-thirds of the country of Spanheim; half the bailliage of Homburg in the circle of the Upper Rhine, together with the duchies of Juliers and Berg, in the circle of Westphalia.

The ancient duchy of Bavaria formed a great part of the circle, bordering on Austria, Passau, and Saltzburg on the east, Tyrol on the south, Suabia on the west, Neuburg and the Upper Palatinate on the north. It was formed of Upper and Lower Bavaria, including, in round numbers, a territory of 12,000 square miles, and a population of 900,000 inhabitants.

Bavaria originally made a part of the Rhætia, Vindelicia, and Noricum, of the ancients; and received its Latin name Boiaria, or Bojoaria, from the Boii, a people of Celtic Gaul, who colonised it at an early period. These people were governed by native princes, till Charlemagne took possession of the country, and committed the government to some of his counts, and, on the partition of his imperial dominions amongst his grandsons, Bavaria was assigned to Louis the German. It bore the title of margraviate till the year 920, when Arnold, the reigning prince, was raised to the quality of duke. In 1623 Maximilian I., having assisted Ferdinand II. against his Bohemian insurgents, was elevated to the electoral dignity, after which few events of importance occurred till the year 1777, when the disputed succession, incident on the extinction of the reigning branch, produced a disposition in Austria to seize the whole electorate, and annex it to her dominions; a measure which was happily prevented by the prompt and energetic conduct of Frederic II. After the adjustment of the Austrian pretensions, the electorate enjoyed the blessings of peace till the French revolution, which involved all Germany in the flames of civil discord. The elector remained on the side of the imperialists till 1796, when the French marched a powerful army into his dominions, and concluded a treaty for the cessation of hostilities. The year following was signed the treaty of Campo-Formio, and in 1801 that of Luneville; by which all the German dominions left of the Rhine, were annexed to France, and the elector lost the palatinate of the Rhine, the duchies of Juliers and Deux Ponts, with all his possessions in the Netherlands and Alsace, receiving as indemnities the bishoprics of Freysingen, Bamberg, Augsburg, and Kempten, with ten abbeys, fifteen imperial towns, and two imperial villages, besides the western part of the bishopric and town of Passau. In the conflicts between France and the continental powers, Bavaria remained neuter till 1805, when the elector entered into an alliance with Napoleon, and was shortly afterwards raised to the dignity of king, and had his dominions enlarged by the annexation of several important provinces.

Shortly after the campaign of 1806, when Austria, to purchase peace, sacrificed part of her possessions, the kingdom of Bavaria received still a further enlargement, by the addition of Tyrol, Eichstadt, the eastern part of Passau, and other territories, when she began to assume a more important station amongst the surrounding states. Another alteration occurred at the dissolution of the Germanic constitution, and the formation of the Rhenish confederation, when the duchy of Berg was resigned for the margraviate of Anspach, together with the imperial towns and territories of Augsburg and Nuremburg. In 1809, Bavaria took part with France against Austria, and again shared the spoils of conquest; but subsequently ceded some of her territories to Wirtemburg and Wurtzburg; and by another alteration, which shortly followed, exchanged a great part of Tyrol for the acquirement of Bayreuth and Ratisbon.

Before the political proceedings of October 1809 the extent of Bavaria was calculated at 36,770 English square miles, and the population at 3,231,570; and it furnished in time of war a contingent of 30,000 troops. But by the treaty concluded at that time, she acquired an addition

territory of 5550 square miles, and a population of 1,492,000, which augmented the Bavarian territories to 42,320 square miles, and the population to 4,723,570.

When the love of military conquest, and the intoxication of unparalleled success, induced Napoleon to march the French armies to Moscow, the Bavarian troops were amongst those which were destined never to return. The king of Bavaria now began to apprehend the consequences of this expedition upon the future success of the French emperor, and just at the period of that eventful crisis entered into a treaty with the emperor of Austria, and joined the allies in breaking that thraldom under which a great part of Europe labored. These important services were not forgotten, and in the subsequent negociations, at the congress of Vienna, the title of king was confirmed, part of the contribution money paid by France was assigned him, and the support of a body of Bavarian troops at the expense of France was agreed to. With respect to territory, the remaining part of Tyrol was ceded to Austria. The grand duchy of Wurtzburg, the principality of Aschaffenburgh, and the greater part of the ci-devant French department of Mont Tonnere, were acquired; amounting to about 4000 square miles, and more than half a million of inhabitants.

In 1810 Bavaria was divided into the following circles:

Circles.	Chief towns.
The Main . . .	Bamberg.
The Rezat . . .	Anspach.
The Upper Danube . .	Eichstadt.
The Lower Danube . .	Passau.
The Regen . . .	Ratisbon.
The Iller . . .	Kempten.
The Iser	Munich.

The names of these circles are derived from the principal rivers of the several districts, and a slight alteration in some of them has since occurred. The subsequent acquisitions are as follows:

The principality of Aschaffenburg	Aschaffenburg.
The grand duchy of Wurtzburg .	Wurtzburg.
The circle of the Rhine, (late Mont Tonnere) . . .	Landau.

The population of Bavaria is by no means equally distributed over its surface. The sides of the Danube, the lower districts of the grand duchy of Wurtzburg some districts of the margraviate of Anspach, with the recent acquisitions on the left bank of the Rhine, are much more thickly inhabited than the other parts. Indeed, much of the southern portion consists of rugged mountains and other tracts, which are scarcely fit for habitation, except in the valleys formed by the several divisions of the Alps.

Surrounded as it is by other countries, from which it is separated by mere arbitrary divisions, the outlines of Bavaria present nothing remarkable. The surface is greatly diversified, and the southern regions are mountainous and woody. The ground near the Alps lies higher than the general area, forming an ascent, in which numerous lakes are embosomed, together with wastes and marshes, which have not yet been brought to any considerable pitch of cultivation. Much of the ancient palatinate swells into mountains, which are darkened with forests. The margraviate of Anspach is in part mountainous and sandy. But the extensive and fertile plains that stretch along the northern and central regions, and the wide valleys which lie to the north and north-east of Munich, and are watered by the rivers Inn and Iser, serve to vary the general surface, and relieve the natural features of the landscape.

Mountains and hills are numerous in Bavaria, especially in Anspach, and the neighbouring districts, together with the territories on the left bank of the Rhine. The Alps, branching off in a lofty chain, strike out the line of division between this kingdom and Tyrol; while the broken surface of Bohemia is bounded by an elevated range, the lateral branches of which diversify the surface of the adjacent regions.

Bavaria, from the position of its included area, is intersected by numerous rivers, which, for the most part, become tributary to the Danube. The Inn descends from the lofty regions of eastern Switzerland. Like its sister streams, it soon becomes a rapid river; and, having collected a great body of water, rolls north-east through the kingdom of Bavaria, and having formed the line of boundary between that state and Austria, falls into the Danube. The Iser and the Lech originate in the mountains and cascades of Tyrol, and flow through the southern regions of Bavaria. The former passes Munich, Mosburg, and Landshut, after which it falls into the Danube, opposite to Deckendorf; and the latter proceeds almost due north to the same receptacle. The Iller flows nearly parallel to the Lech, and joins the same parent river near the city of Ulm. The Nab rises in the range lying between Bohemia and Bavaria, and the Altmuhl in the higher parts of the margraviate of Anspach: the former joins the Danube, west of Ratisbon; and the latter a few miles higher up the stream. The Danube is the grand river of Bavaria, and intersects the whole kingdom, east and west, though not without a considerable sweep towards the north.

These rivers greatly refresh the herbage and terranean productions of the kingdom generally, besides answering, to a considerable extent, the important purposes of an inland navigation.

The largest lake is that of Ammer, lying at the foot of the Alps. Other lakes are found in different parts of the kingdom, but in general are not of sufficient importance to require distinct enumeration.

The climate and temperature of Bavaria are various, owing to its relative situation, and the different degrees of elevation observable upon its surface, by which it is rendered capable of producing all the necessaries of life, together with many of its luxuries. While the vine flourishes in one part, the fir attains maturity in another; but the native indolence of the inhabitants prevents their reaping all the advantages of their climate; and thousands of acres of good land lie completely unoccupied. The valleys are generally well watered, and possess a rich soil, while

the upland territories are overspread with rocks and forests. The plains produce grain, fruit, wine, hops, &c. Flax is cultivated in the district of the Bavarian desert. Vines flourish on the banks of the rivers Danube and Iser; and much excellent fruit is grown in the vicinity of Landshut, although the most fertile parts are frequently spotted with oases and islands of sand, which seem at present to be incorrigible.

The mineral productions of Bavaria comprise copper, iron, marble, coal, gypsum, vitriol, and several kinds of argillaceous earth, the most noted of which is the species of clay of which the Passau crucibles are made. Iron and copper are the most important, and of the latter 3000 quintals are obtained annually. At Traunstein, near the confines of Saltzburg, are numerous rich salt-springs, which furnish employment to a great number of the inhabitants. Mineral waters are also common in Bavaria, but are generally considered inferior to those found in many other parts of Germany.

The margraviate of Anspach is noted for its superior breed of horses, which have been of late much improved by an intermixture with those of England. The same degree of attention has been bestowed upon their cattle, by an intermixture with the Swiss breed. The coarse wool of their native flocks has also been much improved, by the introduction of Marinos amongst the sheep, especially in Bavaria Proper. The wild animals of Bavaria are bears, wolves, lynxes, foxes, wild boars, &c. The rivers are well stocked with fish, and in some of them beavers are common.

The principal towns are Munich, Augsburg, Bamberg, Anspach, Bayreuth, Amberg, Wurtzburg, Eichstadt, Passau, Ingolstadt, and Nuremburg, together with some others of less note : as, Kempten, Freysingen, Landshut, Mosburg, Newburg, Nordlingen, Memmingen, Schweinfurt, Straubing, and others.

Munich, the capital, is seated on the river Iser, and in the year 1814, contained as many as 60,000 inhabitants, besides 18,659, who inhabited the suburbs, and 26,000 strangers, who were supposed to visit it annually. It is the centre of the most valuable national manufactures, and was rendered, by the concordat of 1817, the seat of an archbishop.

The general manufactures and commerce of Bavaria, are under a restrictive influence, from the native indolence of the inhabitants, together with the numerous fasts and saints' days of the Roman church. Their manufactures, which include linen, woollen, and cotton cloths, iron, firearms, earthenwares, &c., are chiefly directed to the supply of their domestic wants. Augsburg has manufactures of paper, gold, silver, jewelry, and cotton. It is engaged in the transfer of goods between Germany and Italy, and is the general focus of exchange for the southern countries of Germany. Friedburg is noted for its clocks and watches. Philosophical instruments are made at Munich; and it was here that the art of lithography was discovered. Near Hohen Aschau is an iron mine, the largest in the kingdom, together with foundries and forges, the produce of which, with their grain, wood, wine, salt, and vitriol, form the chief exports.

The government of Bavaria approaches to an unlimited monarchy, though not without something of the representative form. The senate meet at Munich, but seldom exercise the functions of the prerogative. The crown is hereditary in the male line; but in case of total failure of the male descent, females may be invested with the supreme power. The minority of the king terminates with his eighteenth year, and his council includes all the members of the royal family above a certain age, the ministers of state, and the great officers of the household. A royal commissioner presides over each of the circles into which the nation is divided; and commissaries of police are distributed in all the principal towns. A court of appeal also, is established in each circle, to which causes may be removed; and there is a supreme court at Munich, whose sentence is final. By the new constitution of Germany, according to the decisions of the late congress, Bavaria is made the first of its secondary kingdoms, possesses one vote in the federative diet and four in the general assembly.

The Bavarian army, during the late war, amounted to 60,000 men; but after the peace it was reduced to 40,000. The annual revenue is estimated at two millions; burdened, however, with a considerable debt.

The inferior kingdoms of Germany are of too little importance to become principals in any European war, but they are frequently found very effective allies. For instance, in case of war between France and Austria, the alliance of Bavaria with the former, would bring the French troops into the very heart of Germany; and with the latter, would conduct the Austrian troops to the very borders of France. It is in this light only that the political importance of this kingdom can be duly estimated: a practical illustration of which took place in 1813, when, during the crisis in which Napoleon was endeavouring to establish himself at Dresden, Bavaria declared in favor of the allies.

The prevailing religion of Bavaria is the Roman Catholic. The inhabitants were formerly considered some of the most intolerant in Europe, and the Bavarian bishops being independent princes, the power of the church knew no control: but by the diffusion of superior light, liberal sentiments began to prevail, the temporal authority of the ecclesiastics was abolished in 1802, as were also many of the monastic institutions, and toleration was regarded as a civil right. There are now two archbishops, and four bishops; the former, according to a concordat agreed to by the Pope in 1817, are those of Munich and Bamberg, and the latter those of Augsburg, Wurtzburg, Ratisbon, and Eichstadt. The influence of the church is still greater in Bavaria than in any other part of Germany.

Bavaria has never risen to any remarkable distinction. Indeed the bigotry, ignorance, and intolerance, which formed the national character of the people, presented almost insurmountable obstacles to all liberal and enterprising views with respect to education, agriculture, and commerce. The almost ceaseless train of saints' days, and holy days, seemed to breed nothing but indolence and superstition. Bavaria now begins to emerge

from her long-cherished barbarism. Education is attended to; academies, lyceums, and universities, have been multiplied; productions of foreign literature have been imported, to excite the emulation of native genius, and the effects of these generous efforts have already shone forth, in the improved condition of society, and the gradual advance of moral and physical renovation. Much, however, yet remains to be done, especially in those regions which were most darkened by religious superstition. But, calculating upon the measures of the present government, the eye of anticipation looks through a train of consequences to the distant period when the mists shall disperse, the clouds clear up, and Bavaria aspire to an equality with the other kingdoms of Europe.

The language of the Bavarians is a dialect of the German, which, however, they have neglected to cultivate; travellers agree in describing them as the most sensual and phlegmatic of the German nations.

The Bavarians are in appearance a stout and vigorous race of men, well adapted to bear the fatigues of war. They resemble the Irish peasantry in their propensity to drink and quarrel; and their manners at the close of the last century were coarse in the extreme. Amidst all the dirt, indolence, and laxity of morals, which are here carried to excess, the Bavarian is, in general, faithful to his word; which is almost the only good feature that is at all prominent. Many of the females are lively, handsome, and graceful; but their charms are altogether personal, since intellectual cultivation is scarcely a subject of attention.

The antiquities and curiosities are few in number, but are calculated to awaken no ordinary feelings of interest and astonishment. In the capital, Munich, the objects most worthy of attention are the Cabinet of Natural Curiosities, the Library, the Arsenal, and the Ducal Gardens.

The Museum contains a complete series of busts of the Roman emperors, together with many other remarkable antiquities. Roman stations, roads, and coins, are frequent, and form, with the churches and castles, a charming collision of objects, highly interesting to the architect, the statuary, and the antiquarian. But all the works of art are more than eclipsed by the more magnificent wonders of nature. The scenes in the interior of the mountains have often awakened the astonishment of the traveller, and left him overwhelmed by the terror of the sublime; and no doubt many unexplored caverns yet remain which no human foot has ever trod. We shall select the following instance of these amazing recesses, as described by Mr. Parkinson, for the entertainment of the reader. It is to be found in his curious and valuable work The Organic Remains of a former World.

'Among the most remarkable of these caverns are those of Gaylenreuth, on the confines of Bayreuth. The opening to these, which is about seven feet and a half high, is at the foot of a rock of lime-stone, of considerable magnitude, and in its eastern side. Immediately beyond the opening is a magnificent grotto, of about 300 feet in circumference, which has been naturally divided by the form of the roof into four caves. The first is about twenty-five feet long and wide, and varies in height from nine to eighteen feet; the roof being formed into irregular arches. Beyond this is the second cave, about twenty-eight feet long, and of nearly the same width and height with the former. In this cave the stalactitic crust begins to appear, and in considerable quantity; but not in such quantity as in the third cave, which is beautifully hung, as it were, with this sparry tapestry. The roof now begins to slope downwards, so that in the next, the last of these caves, it is not above four or five feet in height. In the caves forming this first grotto fragments of bones are found, and it is said that they were as plentiful here as they now are in the interior grottoes.

'The passage into the second grotto is about six feet high, and fourteen feet wide. This grotto, which extends straight forward sixty feet from the opening, and is about forty feet wide, and at its commencement about eighteen feet high, would commodiously hold 200 men. Its appearance is rendered remarkably interesting, from the darkness of its recesses, and from the various brilliant reflections of the light from the stalactites with which its roofs and sides are covered. The constant drip of water from the roof, and the stalagmatic pillars on the floor, assist in perfecting the wonders of the scene. In this grotto no search was made for bones, on account of the thickness of the sparry crust.

'A low and very rugged passage, the roof of which is formed of projecting pieces of rock, leads to the third grotto; the opening to which is a hole, three feet high, and four feet wide. This grotto is more regular in its form, and is about thirty feet in diameter, and nearly round. Its height is from five to six feet. This grotto is very richly and fantastically adorned by the varying forms of its stalactitic hangings. The floor is also covered with a wet and slippery glazing, in which several teeth and jaws appear to have been fixed.

'From this grotto commences the descent to the interior caverns; within only about five or six feet an opening in the floor is seen, which is partly vaulted over by a projecting piece of rock. The descent is about twenty feet, and occasioned to M. Esper and his companions some little fear, lest they should never return, but remain to augment the zoolithes contained in these terrific mansions. This cavern was found to be about thirty feet in height, about fifteen in width, and nearly circular; the sides, roof, and floor, displaying the remains of animals. The rock itself is thickly beset with teeth and bones; and the floor is covered with a loose earth, formed by animal decomposition, and in which numerous bones are imbedded.

'A gradual descent leads to another grotto, which, with its passage, is forty feet in length, and twenty feet in height. Its sides and top are beautifully adorned with stalactites. Nearly twenty feet further is a frightful gulph, the opening of which is about fifteen feet in diameter; and, upon descending about twenty feet, another grotto, about the same diameter with the former, but forty feet in height, is seen. Here the bones are dispersed about, and the floor, which is

formed of animal earth, has great numbers of them imbedded in it. The bones which are here found seem to be of different animals; but in this, as well as in the former caverns, perfect and unbroken bones are very seldom found. Sometimes a tooth is seen projecting from the solid rock, through the stalactitic covering; showing that many of these wonderful remains may here be concealed. A specimen of this kind, which I possess, from Gaylenreuth, is rendered particularly interesting by the first molar tooth of the lower jaw, with its enamel quite perfect, rising through the stalactitic mass which invests the bone. In this cavern the stalactites begin to be of a larger size, and of a more columnar form.

'Passing on through a narrow opening in the rock, a small cave, seven feet long and five feet high, is discovered. Another small opening out of this leads to another small cave, from which a sloping descent leads to a cave twenty-five feet in height, and about half as much in its diameter, in which is a truncated columnar stalactite, eight feet in circumference.

'A narrow and difficult passage, twenty feet in length, leads from this cavern to another of twenty-five feet, which is everywhere beset with teeth, bones, and stalactitic projections. This cavern is suddenly contracted so as to form a vestibule of six feet wide, ten long, and nine high, terminating in an opening close to the floor, only three feet wide, and two high; through which it is necessary to writhe with the body on the ground. This leads into a small cave, eight feet high and wide, which is the passage into a grotto twenty-eight feet high, and about forty-three feet long and wide. Here the prodigious quantity of animal earth, the vast number of teeth, jaws, and other bones, and the heavy grouping of the stalactites, produced so dismal an appearance as to lead M. Esper to speak of it as a perfect model for a temple for a god of the dead. Here hundreds of cart-loads of bony remains might be removed, pockets might be filled with fossil teeth, and animal earth was found to reach to the utmost depth to which they dug. A piece of stalactite being here broken down, was found to contain pieces of bones within it, the remnants of which were left imbedded in the rock.

'From this principal cave is a very narrow passage, terminating in the last cave, which is almost six feet in width, fifteen in height, and the same in length. In this cave were no animal remains, and the floor was the naked rock.

'Thus far only could these natural sepulchres be traced; but there is reason to suppose that these remains were disposed through a greater part of this rock.' By what means such immense quantities of animal materials were accumulated in these subterraneous abodes remains totally inexplicable, and no reasonable conjectures have yet been offered on the subject.

BAVATA TERRÆ, i. e. a bavoch of land, an ancient division of land, in the highlands of Scotland, mentioned by the Regiam Majestatem, as containing thirteen acres, and distinguished from a smaller portion called davata terræ, a davoch of land, which contained only four aratra, or the eighth part of a bavata i. e. 1⅝ acres.

BAVAY, a small town of France, in the department of the north (late province of Hainault), to which the French retired after the battle of Malplaquet, in 1709. It was taken by the Austrians in 1792, but recovered the same year. This was anciently the capital of the Nervii; and a variety of Roman medals have been found in the neighbourhood. It has manufactories of woollen stuffs, stockings, and iron plate; and was ceded to France by the peace of Nimeguen, in 1678. It stands on the road from Maubeuge to Valenciennes, about eight miles north-east of Quesnoy, and nearly thirty east of Douay.

BAUBEE'. A Scottish word for a halfpenny. This coin, bearing the head of James the VIth king of Scotland, when young, has been supposed by some to have been therefore called *baubee*, as exhibiting the figure of a baby. But Dr. Jamieson says this is a great mistake; the name, as well as the coin, being known before that prince's reign. Mr. Pinkerton derives it from the French *bas-billon*, or the worst kind of billon.

> Though in the drawers of my Japan bureau,
> To Lady Gripeall I the Cæsars show,
> 'Tis equal to her Ladyship or me
> A copper Otho, or a Scotch *baubee*.
>
> *Bramston's Man of Taste.*

> And as to her false accusation of spoil, we did remit us to the conscience of Mr. Robert Richeson, master of the coining-house, who from our hands received silver, gold, and metal, as well coined as uncoined, so that with us there did not remain the value of a *baubee*, or farthing.
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> *Knox. History of the Reformation of Scotland.*

BAUCHERVILLE, a port in lower Canada, on the south bank of the St. Lawrence, opposite Montreal. It is beautifully situated, and remarkable as the retreat of several of the old French nobles, who spend their small incomes in a little society of their own.

BAUCIS, in fabulous history, a woman who lived with Philemon her husband, in a cottage in Phrygia. Jupiter and Mercury, travelling in the country, were well received by them, after having been refused entertainment by every-body else. To punish the people for their inhumanity, these gods laid the country waste with water; but took Baucis and Philemon with them to the top of a mountain, where they saw the deluge, and their own little hut above the waters, turned into a temple. They desired to officiate in this temple as priest and priestess, and that they might die both together, which were granted them.

BAUCONICA, in ancient geography, a town of the Vangiones in Gallia Belgica, supposed to be the present OPPENHEIM, which see.

BAUD, a town of France in Brittany, the head of a canton in the department of Morbihan, arrondissement of Pontivy. Population 6200. 18 miles north-west of Vannes.

BAUDEKIN, BALDICUM, and BALDAKINUM, in our old writers, a cloth of gold, or tissue, upon which figures in silk, &c. were embroidered. Some writers regard it as only a cloth of silk.

BAUDELOT (Charles Cæsar), a learned advocate of Paris, was distinguished by his skill in ancient monuments; he was received into the Academy of Belles Lettres in 1705. He wrote a Treatise on the Advantages of Travelling; Letters and

Dissertations on Medals, &c; and died in 1722, aged seventy-four.

BAUDIER (Michael), of Languedoc, lived in the reign of Louis XII., and wrote 1. An Inventory of the General History of the Turks; 2. The History of the Seraglio; 3. Of the religion of the Turks; 4. Of the Court of the King of China; and 5. The Life of Cardinal Ximenes, &c.

BAUDISSERITE, in mineralogy, a compound mineral, found at Baudissero in Piedmont, composed principally of silver and magnesia. It passes into Meerschaum, or sea froth, of which bowls of pipes for smoking are frequently made.

BAUDIUS (Dominic), a professor of history in the university of Leyden, born at Lisle, in 1561. He studied at Aix-la-Chapelle, Leyden, and Geneva, and was admitted L. L. D. in 1585. Soon after, he accompanied the ambassadors from the states to England, where he became acquainted with Sir Philip Sidney. He was admitted advocate at the Hague in 1587; but being soon tired of the bar, went to travel in France, where he remained ten years, and was much esteemed. Through the influence of Achilles de Harlai, first president of the parliament of Paris, he was admitted advocate of the parliament of Paris in 1592. In 1602 he went to England with Christopher de Harlai, the president's son, who was sent ambassador to London from Henry IV., but being soon after appointed professor of eloquence at Leyden, he settled in that university. Here he read lectures on history, and on the civil law. In 1611 the states conferred on him, in conjunction with Meursius, the office of historiographer, and in consequence he wrote The History of the Truce. He was an elegant prose writer, as appears from his letters, many of which were published after his death, and also an excellent Latin poet. His poems were first printed in 1587, and he published separately a book of Iambics in 1591, dedicated to Cardinal Bourbon. He died at Leyden in 1613.

BAUDOBRIGA, in ancient geography, a town of the Treveri in Germany, now Boppart, in the electorate of Triers. See BOPPART.

BAUDRAND (Michael Antony), a celebrated geographer, born at Paris in 1633. He travelled into several countries, and then applied himself to the revisal of Ferrarius' Geographical Dictionary, which he enlarged by one half. He wrote, 1. Notes to Papirius Masson's description of the Rivers of France; 2. A Geographical and Historical Dictionary; 3. Christian Geography, or an account of the Archbishoprics and Bishoprics of the whole world; and made several maps. He died at Paris, May 29, 1700.

BAUERA, in botany, a genus of plants, class polyandria, order digynia. Its generic characters are: CAL. inferior eight-fid: COR. eight petals, capsule bilocular, many seeded. The species are, 1. B. rubiæfolia madder-leaved Bauera B. rubioides; Audr. Repos. t. 198, Curt. Mag. t. 715. Venten. Malmais. t. 96. Native of New South Wales, first discovered in that country by Sir Joseph Banks. It requires the shelter of a green-house, or conservatory, and flowers during most part of the summer and autumn. Another species is mentioned by the name of B. humilis, in Ait. Epit. 364, as introduced at Kew, from New Holland in 1805, and flowering in June and July.

BAUGE, a drugget manufactured in Burgundy, with thread spun thick, and coarse wool.

BAUGE', a small town of France, in the department of the Mayenne and Loire, and late province of Anjou, famous for the victory gained by Charles VII. over the English in 1421. It is seated on the Coesnon, twenty-two miles east by north of Angers, and has about 3000 inhabitants.

BAUHIN (Casper, or Gaspar), an eminent anatomist and botanist, born at Basil in 1550. In 1580, he was chosen first professor of these sciences at Basil, and in 1614 was first professor of physic, and first physician of that city, a distinction which he held till his death, in 1623. He wrote, 1. Anatomical Institutions; 2. Prodromus Theatri Botanici, and other works.

BAUHIN (John), elder brother to Caspar, a great botanist, was born about the middle of the sixteenth century. He took his doctor's degree in physic in 1562, and afterwards became principal physician to Frederick duke of Wirtemburg. The most considerable of his works is his Universal History of Plants.

BAUHINIA, MOUNTAIN EBONY, in botany, a genus of the monogynia order, and decandria class of plants, ranking in the natural method under the thirty-third order, lomentaceæ: CAL. quinquefid, and deciduous; the petals, oblong expanded, and clawed, the superior one more distant, all inserted on the calyx; the capsule, a legumen. There are 10 species, which are propagated by seeds, and must be sown in hot-beds, and are reared in a bark stove. The most remarkable are: 1. B. aculeata, with a prickly stalk, common in Jamaica and other American sugar islands, where it rises to sixteen or eighteen feet, with a crooked stem. 2. B. acuminata, with oval leaves, a native of both the Indies, rising with several pretty strong, upright, smooth stems, sending out slender branches, garnished with oval leaves divided into two lobes. 3. B. divaricata, with oval leaves, whose lobes spread different ways. This grows naturally in great plenty on the north side of the island of Jamaica. 4. B. tomentosa, with heart-shaped leaves, a native of Campeachy; and rises to twelve or fourteen feet, with a smooth stem dividing into many branches. 5. B. variegata, with heart-shaped leaves, and lobes joining together, is a native of both the Indies. It rises with a strong stem upwards of twenty feet, dividing into many strong branches.

BAV'IAN. The same as *babian*. A baboon or monkey; an occasional but not a regular character in the old morris dance. From Dut. *buviaan*, Germ. *pavian*, a great monkey. He appears in act iii. scene 5, of The Two Noble Kinsmen, where his office is to bark, to tumble, to play antics, and exhibit a long tail with what decency he could. So *babouin* in French, and our *baboon*.

Where's the *bavian*?
My friend, carry your tail without offence
Or scandal to the ladies, and be sure
You tumble with audacity and manhood;
And when you bark, do it with judgment.
Beaumont and Fletcher.

BAV'IN. Brushwood, or small faggots, made of such light and combustible matter, used for lighting fires. Still in use in some counties.

The skipping king, he ambled up and down,
With shallow jesters and rash *bavin* wits,
Soon kindled and soon burnt.
Shakspeare. Henry IV.

Bavins will have their flashes, and youth their fancies, the one as soon quench'd as the others are burnt. *Mother Bombie*, 1594.

BAVIUS and MÆVIUS, two wretched poets of ancient Rome, who have been

'Damn'd to everlasting fame,'

in that severe line of Virgil:

Qui Bavium non odit amet tua carmina Mævi.

BAULEAH, a considerable town of Bengal, in a very fertile country, to the north-east of the Ganges. The East India Company have here a very extensive factory for silk, which supplies a third part of that material exported from Bengal.

BAULOT, or BEAULIEU, famous for his operations in lithotomy. He was born in 1651, of parents in low circumstances, and he entered early into the army; but after he had been some time a soldier, he got acquainted with an empirical surgeon, who pretended to cure the stone; and having received some lessons from this man, he assumed the monastic habit, though he belonged to no religious order, calling himself brother James. Thus he travelled through various provinces, and performed various operations; and at last went to Paris. Here his practice was disapproved of at first; but having been successful in curing a boy, his patients soon after became numerous. After extracting the stone he left the wound to heal of itself. The famous Cheselden adopted and improved upon brother James's method. He died in 1720.

BAUM, in botany. See MELISSA.

BAUM, BASTARD. See MELITTIS.

BAUM, SHRUBBY. See MOLUCCA.

BAUMAN ISLES, a cluster of islands in the South Pacific Ocean, discovered in 1722, by the person whose name they bear, in his voyage round the world with M. Roggewein. They lie in 12° of south latitude, and 173° of west longitude. The largest is about twenty miles in circumference; and the inhabitants were found to manifest a gentle and friendly disposition.

BAUMANNIANA, in entomology, a species of phalæna (tortrix) that inhabits Austria. The anterior wings are yellow, with two ferruginous anastomising bands bordered with silver; posterior one interrupted.

BAUMANSHOPLE, a remarkable cavern in the Brunswick states, principality of Blankenburg, Germany, situated in a steep rock near Rubeland. It consists of six or seven vaults, communicating by narrow apertures, and filled with stalactitic petrifactions, arranged in a thousand fantastic forms. No one has ever penetrated to the bottom, on account of the dampness and impurity of the air, which extinguishes all lights.

BAUME (Antony), an eminent French chemist towards the close of the last century, who distinguished himself by his opposition to the theory of Lavoisier, and his colleagues. He practised as an apothecary at Paris, and was, in 1775, chosen a member of the Royal Academy of Sciences. On the establishment of the National Institute, he was also one of its members. His principal works are a Treatise on Theoretical and Experimental Chemistry, and a Manual of Pharmacy. He also wrote a Memoir on Argillaceous Earths; a Dissertation on Æther, &c. He died in 1805. He also wrote a great many articles in the Dictionnaire des Arts et Mètiers.

BAUME-LES-NONES, a town of France, the head of an arrondissement, in the department of the Doubs, seated on the river of that name, and having 2500 inhabitants. Five miles from this town is a remarkable cavern, containing a small brook, said to be frozen in summer, but not in winter. When the peasants perceive a mist rising out of this cave, they know that it will rain the next day. Before the revolution there were here two famous abbeys, one for males, the other for females. Sixteen miles north-east of Besançon. Long. 6° 25′ E., lat. 47° 21′ N.

BAUNACH, or PAUNACH, a market town of Bavaria, capital of the district of Gleusdorf, circle of the Maine. It is situated at the influx of a small river of the same name into the Maine, and lay formerly in the principality of Bamberg, in Franconia. Here is a bridge across the latter river, and the surrounding country is rich in corn and wine. Seven miles north of Bamberg.

BAVOSA, in ichthyology, a name given by Italians to a species of the ray fish, now called leviraia, and raia oxyrynchus, and by earlier authors, raja bos, bos marinus, and leioraia. It is distinguished by Artedi as the variegated ray, with ten prickly tubercles on the middle of the back. See PHOLIS.

BAUR (Frederick William Von), a Russian general, born in the county of Hessian Hanau. He very early entered on a military life, and, in 1755, was in the British service as an officer of Hessian artillery. In 1757 he was advanced to the rank of general and engineer; and was afterwards ennobled by Frederick II. of Prussia. He entered into the service of Catharine II. empress of Russia, in 1769, and was by her appointed director of the salt works in Novogorod. He also superintended two great works, the supplying of Moscow with water, and deepening the canal near Petersburg, at the end of which he constructed a commodious harbour. He died in 1783. He wrote Memoires Historiques et Geographiques sur la Valachie, &c. 8vo.; and constructed the Carte de Moldavie, pour servir de la Guerre entre les Russes et le Turcs, in seven sheets.

BAURAC, an ancient name for nitre, and some other salts, confusedly called nitre. The Arabians give the name to tincar or tincal, which, when refined, is called borax, but when rough, in little crystalline masses, like the small crystals of sal gem, mixed with earth or other impurities, it is called tincal.

BAUTRU, a celebrated wit, and one of the first members of the French academy, was born at Paris in 1588, and died there in 1665. He was the delight of the whole court, but while he played the buffoon, took the usual privilege of saying what he pleased. Many of his bon mots are preserved. Once, when in Spain, having

been to see the famous library of the Escurial, where he found a very ignorant librarian, the king of Spain asked him what he had remarked? Bautru replied, that 'the library is a very fine one; but your majesty should make your librarian treasurer of your finances.' 'Why so?' 'Because,' said Bautru, 'he never touches what he is entrusted with.'

BAUTZEN, or Budissen, a considerable town of Germany, the capital of Upper Lusatia, in the kingdom of Saxony, with a strong citadel. It is seated on the river Spree, thirty miles east by north of Dresden. Including the suburb of Seidau, it contains a population of 11,000 or 12,000, most of whom are employed in manufactures, of which the principal are paper, cloth, linen, leather, and stockings. The provincial diet assembles at Bautzen, which is also the seat of the central post office. One half of the parish church is given to the Catholics, and the other to the Lutherans, the latter of whom are about three-fourths of the inhabitants. Here is also a collegiate establishment, called the provostship of St. Peter, all the members of which are Catholics, except the head, who is a Lutheran. The funds of this institution are extensive; and it possesses large tracts of land, both in Saxony and Bohemia. The town-hall, academy, orphan-house, ingenious water machines, as well as the public walks, are worthy of attention. Bautzen has suffered much by fire, particularly in the years 1709, 1760, and 1767. It was also the scene of a bloody conflict between the French and allies in 1813, in which the former were victorious. The language of the Wendens, or descendants of the ancient Vandals, is spoken at Bautzen nearly as much as the modern German.

BAW'BLE, } *Bauble*, or *bable*, *s.* Low Lat.
Baw'bling. } *baubella*; but that word being found only in Hoveden, it is probable that the English may be the original, and the contrary; perhaps both are from the Fr. *babiole*. *Baciballum* is found in Petronius Arbiter in a similar sense; and βαβαλια in Julius Pollux, vol. 16, for bracelets.—*Nares*. Skinner suggests that it may be from *babe*, Ital. *babolo*, an infant; q. d. an infant's plaything. Any pretty, showy, trifling toy. It was anciently used to signify the badge of a fool. In its general signification the word is still current, but the office of a fool being obsolete, it requires, in the latter sense, some explanation. A fool's *bawble* was a short stick, with a head ornamented with asses' ears, fantastically carved upon it.

An idiot holds his *bauble* for a god,
And keeps the oath which by that god he swears.
Shakspeare. Titus Andronicus.

It had been fitter for you have found a fool's coat, and a *bauble*. *Lingua, O. Pl.* v. 129.

If every fool should wear a *bable*, fewel would be dear. *Ray's Prov.* p. 108.

It was also the subject of another proverb, which, as well as several allusions made to it, was of a licentious nature. It appears by the French proverb, subjoined by Ray, that the equivalent word in that language was *marotte*, which is now used for a person's particular foible, or hobby-horse, *C'est-là sa marotte*; it is his hobby-horse. It is in general whether applied to persons or things, a term of contempt.

And hapneth that the kynges foole,
Sat by the fire upon a stole,
As he that with his *bable* plaide,
And yet he heard all that thei saide,
And thereof toke thei no hede.
Gower. Conf. Ann.

In the reproof of chance
Lies the true proof of men: the sea being smooth,
How many shallow *bauble* boats dare sail
Upon her patient breast, making their way
With those of nobler bulk?
But let the ruffian Boreas once enrage
The gentle Thetis, and anon behold
The strong-ribb'd bark through liquid mountains cut,
Bounding between the two moist elements,
Like Perseus' horse: Where's then the saucy boat,
Whose weak untimber'd sides but even now
Co-rival'd greatness? either to harbour fled,
Or made a toast for Neptune. Even so
Doth valour's show, and valour's worth divide
In storms of fortune. *Shakspeare.*

A *bawbling* vessel was he captain of,
For shallow draught, and bulk, unprizable;
With which such scathful grapple did he make,
With the most noble bottom of our fleet. *Id.*

Paper!
Black as the ink that's on thee; senseless *bauble*,
Art thou a feodary, for this act, and look'st
So virgin-like without. *Id.*

When a man begins truly to fear God, and is in the agonies of mortification, all these new-nothings and curiosities will lye neglected by as *baubles* do by children when they are deadly sick. *Taylor's Sermons.*

For who without a cap and *bauble*,
Having subdued a bear and rabble,
And might with honour have come off,
Would put it to a second proof. *Hudibras.*

He (Cromwell) commanded a soldier to seize the mace: 'What shall we do with this *bauble?* Here, take it away. It is you,' said he, addressing himself to the house, 'that have forced me to this, I have sought the Lord, night and day, that he would rather slay me than put me upon this work.'
Hume's History of England.

If, in our contest, we do not interchange useful notions, we shall traffick toys and *baubles*.
Government of the Tongue.

This shall be writ to fright the fry away,
Who draw their little *bawbles*, when they play.
Dryden.

A lady's watch needs neither figures nor wheels;
'Tis enough that 'tis loaded with *bawbles* and seals.
Prior.

Our author then, to please you, in your way,
Presents you now a *bawble* of a play,
In gingling rhyme. *Granville.*

A prince, the moment he is crown'd,
Inherits every virtue round,
As emblems of the sovereign pow'r,
Like other *bawbles* of the tow'r. *Swift.*

Whate'er was light, impertinent, and vain,
Whate'er was loose, indecent, and profane,
(So ripe was folly, folly to acquit),
Stood all absolv'd in that poor *bauble*, wit.
Churchill. Gotham, bk. iii.

BAW'COCK. A burlesque word of endearment, supposed to be derived from *beau coq*; but rather perhaps from *boy* and *cock*. It seems to mean young cock, or fine fellow.

Why that's my *bawcock*. What has smutch'd thy nose? *Shakspeare.*

Good *bawcock*, bate thy rage! use lenity, sweet chuck. *Id. Henry IV.*

BAWD', *v., n. s.* & *adj.* } Either from *baude*, which signifies joyous, from *baudy*, dirty, or from the Goth. *bauyan*, to scrape together, thus *bawd* is a collector of filth, or obscenity. The French have *bauderie*, *baudrie*, that is pimping, keeping a bawdy-house. It refers to obscenity of language, and of intercourse. A bawd is either a male or female pander. It is more frequently applied, however, to the depraved mother in the trade of debauchery, who either facilitate the illicit intercourse of the sexes, as procuresses, or as furnishing them with a place of meeting. Johnson says, somewhat coarsely, that *bawdry* is a wicked practice of procuring and bringing whores and rogues together.

BAWD'ILY,
BAWD'INESS,
BAWD'RY,
BAWD'SHIP,
BAWD'Y.

This false theef, this sompnour quod the frere,
Had alway *baudes* redy to his hond,
As any hawke to liue in Englelond.
Chaucer. The Freres Tale.

This thing is wonder mervaillous to me,
(Sin that thy lord is of so high prudence,
Because of which men shulde him reverence,)
That of his worship rekketh he so lite
His overest sloppe it is not worth a mite,
As in effect to him so mote I go;
It is all *baudy* and to sore also. *Id.*

But here, with al mine herte, I thee beseche
That never in me thou deme soche folie,
As I shall saine—Methought by thy speche,
That this whiche thou me doest for companie,
I should wenen it were a *bauderie:*
I am not wode, all if I leud ybe:
It is not so, that wote I well parde. *Id.*

H'yll hang handsome young men for the soote sinne of loue,
When so his knavery himselfe a *bawdy* Jack doth prove. *Whetstone. Old Play.*

Besides, *bawdry* is become an art, or a liberal science, as Lucian calls it; and there be such tricks and subtleties, so many nurses, old women, panders, letter-carriers, beggars, physicians, friars, confessors, employed about it; such occult notes, stenography, polygraphy, nuntius animatus, or magnetical telling of their minds, which Cabeus, the Jesuit, by the way, counts fabulous and false; cunning conveyances in this kind, that neither Juno's jealousie, nor Danae's custody, nor Argo's vigilancy can keep them safe.
Burton. Anat. of Mel.

The eye is a secret orator, the first *bawde*, amoris porta, and with private looks, winking, glances, and smiles, as so many dialogues they make up the match many times and understand one another's meanings before they come to speak a word. *Id.*

Thy sin's not accidental, but a trade:
Mercy to thee would prove itself a *bawd:*
'Tis best that thou diest quickly. *Shakspeare.*

She says enough;—yet she's a simple *bawd*,
That cannot say as much. *Id.*

Come, sing me a *bawdy* song; make me merry; I was as virtuously given as a gentleman need to be; virtuous enough: swore little; diced not above seven times a week; went to a *bawdy*-house, not above once in a quarter—of an hour; paid money that I borrowed, three or four times; lived well, and in good compass: and now I live out of all order, out of all compass. *Id.*

HEART. For my part I have once escaped—and when I wed again, may she be—ugly as an old hard.
VAINL. Ill-natured, as an old maid—
BELMOUR. Wanton as a young widow—
SHARP. And jealous as a barren wife.
Congreve. Old Bachelor.

Now nothing left, but wither'd, pale, and shrunk,
To *bawd* for others, and go shares in punk. *Pope.*

You may generally observe, that the appetites are sooner moved than the passions. A sly expression, which alludes to *bawdry*, puts a whole row into a pleasing smirk; when a good sentence that describes an inward sentiment of the soul, is received with the greatest coldness and indifference. *Spectator.*

Has the pope lately shut up the *bawdy*-houses, or does he continue to lay a tax upon sin? *Dennis.*

BAWDY-HOUSE. The keeping of a house of ill-fame is cognizable by the temporal law, as a common nuisance, not only because it endangers the public peace by drawing together dissolute and debauched persons, and promoting quarrels, but because it tends to corrupt the manners of the people by an open profession of lewdness (3 Inst. 205. 1 Hawk. P. C. c. 74). Those who keep bawdy-houses are punished with fine and imprisonment, and also such infamous punishment as the court shall inflict; and so is a lodger, who keeps only a single room for such purposes. Also persons resorting to a bawdy-house are punishable, and may be bound to their good behaviour. If a constable receives information that a man and woman are gone to a lewd house, he may carry them before a justice of peace without any warrant, and the justice may bind them over to the sessions. In London, they may carry them to prison; and by the custom of the city, whores and bawds may be carted. By stat. 25 Geo. II. c. 36, made perpetual by stat. 28 Geo. II. c. 19, if two inhabitants, paying scot and lot, shall give notice to a constable of any person keeping a bawdy-house, the constable shall go with them before a justice of peace, and shall, upon the oath of such inhabitants, that they believe the contents of such notice to be true, and their entering into a recognizance of £20 each, to give material evidence of the offence, enter into a recognizance of £30 to prosecute with effect such person for such offence at the next sessions. The constable shall be paid his reasonable expenses by the overseers of the poor, ascertainable by two justices; and upon conviction of the offender, the overseers shall pay the two inhabitants £10 each. A constable, neglecting his duty, forfeits £20. Any person appearing as master or mistress, or as having the care or management of any bawdy-house, shall be deemed the keeper of it, and liable to be punished as such. And a wife may be indicted and set in the pillory with her husband for keeping a brothel, for this is an offence respecting the domestic economy and government of the house, in which the wife has a principal share.

BAWD-MONEY, a name given to the aleum athamanticum.

BAW'DRICKS, *n.* See BALDRICK. Bawdbelt, according to Du Cange, is the ring, belt, or girdle of a bold man, that is of a warrior. The word is used by Sir Thomas More, by Hall, and by Fabian, and is spelt by them variously, *bawdrick*, *baudryck*, and *bawderyke*.

And in her hand a sharp bone spear she held,
And at her backe a bow and quiver gay,
Stuft with steel-headed darts, wherewith she queld
The salvage beasts in her victorious play,
Knit with a golden *bauldrick*, which forelay
Athwart her snowy breast. *Spenser. Faerie Queene.*

Fresh garlands too the virgins' temples crown'd;
The youths gilt swords wore at their thighs, with silver
bawdricks bound. *Chapman's Iliad.*

BAWL, *v. a.* & *n.* } Vossius and Festus
BAWLING, } concur in thinking that
BAWLER, *n.* } this word is formed, a sono vocis, from the sound of the voice; Minshew and Skinner conjecture that it is from the noise which dogs make in barking; and Johnson derives it from the Latin *balo*, to hoot, to cry with great vehemence, whether for joy or pain; to cry as in the market place, either wares or news; a word always used in contempt.

They *bawl* for freedom in their senseless mood,
And still revolt when truth would set them free.
Milton.

To cry the cause up heretofore,
And *bawl* the bishops out of door. *Hudibras.*

Through the thick shades th' eternal scribler *bawls*,
And shakes the statues on their pedestals. *Dryden.*

From his lov'd home no lucre him can draw;
The senate's mad decrees he never saw,
Nor heard at *bawling* bars corrupted law. *Id.*

Loud menaces were heard, and foul disgrace,
And *bawling* infamy, in language base,
Till sense was lost in sound, and silence fled the
place. *Id. Fables.*

So on the tuneful Margarita's tongue
The list'ning nymphs and ravish'd heroes hung;
But cits and fops the heav'n-born musick blame,
And *bawl*, and hiss, and damn her into fame. *Smith.*

I have a race of orderly elderly people, who can *bawl* when I am deaf, and tread softly when I am only giddy and would sleep. *Swift.*

It grieved me when I saw labours which had cost so much, *bawled* about by common hawkers. *Id.*

Fie; fie miss, how you *bawl!*—Besides, I have told you, you must not call me mother. *Congreve.*

A little child was *bawling*, and a woman chiding it.
L'Estrange.

If they were never suffered to have what they cried for, they would never, with *bawling* and peevishness, contend for mastery. *Locke.*

My husband took him in, a dirty boy; it was the business of the servants to attend him, the rogue did *bawl* and make such a noise.
Arbuthnot's History of John Bull.

When rosemary and bays, the poet's crown,
Are *bawl'd* in frequent cries through all the town,
Then judge the festival of Christmas near
Christmas! the joyous period of the year. *Gay.*

BAWLING, among sportsmen, is spoke of the dogs when they are too busy before they find the scent good.

BAWM. See BALM. *Bawmed*, used by R. Brunne.

BAWN, *n.* in the Gothic *bauan*, Germ. *bauen*, a place to reside in; a dwelling; any edifice, whether a fortification or a common habitation, and with whatever materials constructed; it is used by Spenser for an eminence. In Ireland, says Todd, a *bawn* is said to be a place near the house, inclosed with mud or stone walls, to keep the cattle from being stolen in the night.

But these round hills and square *bawnes*, which you see so strongly trenched and thrown up, were (they say) at first ordained for the same purpose, that people might assemble themselves therein, and, therefore, aunciently, they were called folkmotes, that is, a place of people, to meete or talke of any thing that concerned any difference between parties and townships, which seemeth yet to me very requisite.
Spenser. View of the State of Ireland.

Thus spoke to my lady the knight full of care,—
Let me have your advice in a weighty affair;
This Hamilton's *bawn*, whilst it sticks on my hand,
I lose by the house what I get by the land;
But how to dispose of it to the best bidder,
For a barrack or malt-house, we now must consider.
Swift. The Grand Question Debated.

BAWTREY, or BAWTRY, a market town and chapelry, in the parish of Blythe, West Riding of York. It stands near the river Idle, eight or ten miles from its fall into the Trent: is nine miles south-east from Doncaster, and 153 from London, and contains from 900 to 1000 inhabitants. This place has much trade from its river navigation, having mill and grindstones from Derbyshire, and lead, and all kinds of iron manufactures, from Sheffield. It is a great thoroughfare to Scotland, and has a good market on Thursday, formerly on Wednesday.

BAXTER (Andrew), an ingenious metaphysical writer, was born in 1686 or 1687, at Old Aberdeen, and educated at King's College. About 1724 he married the daughter of a clergyman in Berwickshire. A few years after, he published in 4to, An Inquiry into the Nature of the Human Soul, wherein its immateriality is is evinced from the principles of reason and philosophy. In 1741 he went abroad with Mr. Hay, and resided some years at Utrecht; having there Lord Blantyre also under his care. He made excursions from thence into Flanders, France, and Germany; his wife and family residing, in the mean time, chiefly at Berwick. In 1737 he returned to Scotland, and resided till his death at Whittingham, in the shire of East Lothian. He drew up, for the use of his pupils and his son, a piece entitled Matho: sive, Cosmotheoria puerilis, dialogus. In quo prima elementa de mundi ordine et ornatu proponuntur, &c. This was afterwards greatly enlarged, and published in English, in two volumes, 8vo. In 1750, he published an Appendix to his Inquiry. He died April 23, 1750, after suffering for some months under a complication of disorders.

BAXTER, (Richard), an eminent nonconformist divine, was born at Rowton in Shropshire, in 1615. He was somewhat unfortunate in his tutors, who were either men of little ability, or very inattentive to their charge; but his own genius and perseverance surmounted this obstacle; and he was distinguished in early life for his learning, as well as his piety. He was ordained in 1638, and upon the opening of the long parliament, was chosen vicar of Kidderminster. In the heat of the civil wars he withdrew to Coventry, and preached to the garrison and inhabitants. When Oliver Cromwell was made protector, he would not comply with his measures, though he preached once before him. He came to London just prior to the deposing of Richard Cromwell, and preached before the

parliament the day before they voted the return of King Charles II. Upon the Restoration he was appointed one of the king's chaplains in ordinary. He assisted at the conference in the Savoy, as one of the commissioners for the settlement of religion, and drew up a reformed liturgy. About this time he was offered the bishopric of Hereford, which he refused; and desired only to resume his charge at Kidderminster. He was not, however, permitted to preach there above twice or thrice after the Restoration. On this he returned to London, and preached occasionally about the city, till the act of uniformity took place. In 1662 he married Margaret, daughter of Francis Charleton, Esq. of Salop, a justice of the peace. She was a woman of great piety, and entered fully into her husband's views concerning religion. During the plague in 1665, he retired into Buckinghamshire; but afterward returned to Acton, where he staid till the act against conventicles expired; and then his audience was so large that he wanted room. Soon after we find him imprisoned, but procuring an habeas corpus, he was discharged. After the indulgence in 1672 he returned to London; and in 1682 he was once more incarcerated and put to great expense. In 1684 he was again apprehended, and at the commencement of the reign of James II. was tried before justice Jefferies, for his Paraphrase on the New Testament; which was called a scandalous and seditious book against the government. He continued in prison two years; from whence he was discharged, and had his fine remitted by the king. He died in 1691; and was buried in Christ Church. One of his biographers says, rather boldly, of Richard Baxter, 'he could say what he would, and he could prove what he said.' He was honored, however, with the friendship of the earl of Lauderdale, the earl of Balcarras, L. Chief Justice Hales, Drs. Tillotson, Barrow, &c. and held correspondence with the most eminent foreign divines. He himself wrote above 120 books, and had above sixty written against him. Barrow says, that 'his practical writings were never mended, and his controversial seldom confuted.' Granger declares that he was a man famous for weakness of body and strength of mind; for having the strongest sense of religion himself, and exciting a sense of it in the thoughtless and profligate; for preaching more sermons, engaging in more controversies, and writing more books, than any other nonconformist of his age. He spoke, disputed, and wrote with ease; and discovered the same intrepidity when he reproved Cromwell and expostulated with Charles II. as when he preached to a congregation of mechanics. His portrait, in full proportion, is drawn in his Narrative of his own Life and Times; which though a rhapsody, composed in the manner of a diary, contains a great variety of memorable things, and is itself, as far as it goes, a History of Nonconformity. His most famous works were, 1. The Saint's Everlasting Rest. 2. Call to the Unconverted, of which 20,000 have been sold in one year; and which has been translated into all the European languages. 3. Poor Man's Family Book. 4. Dying Thoughts; and 5. the above-mentioned Paraphrase. His practical works have been printed in four volumes folio. See BAXTERIANS.

BAXTERIANS, in ecclesiastical history, those who adopt the doctrinal sentiments of Richard Baxter. The opinions maintained by this excellent man were conciliatory, and have, since his time been embraced by many moderate and candid men, of different sects and parties. Baxter's system was formed not to inflame the passions and widen the breaches, but to heal those wounds of the church under which she had long languished. Some controversialists, however, were much displeased with Baxter's attempt; and we have heard of a piece in which supposed inconsistencies in his doctrines are set in a kind of battle-array against each other;—it is entitled Richard against Baxter.

The Baxterian strikes into a middle path, between Arminianism and Calvinism, and thus endeavours to unite both schemes. With the Calvinist, he professes to believe that a certain number, determined upon in the divine councils, will be infallibly saved; and with the Arminian, he joins in rejecting the doctrine of reprobation as absurd and impious; admits that Christ, in a certain sense, died for all, and supposes that such a portion of grace is allotted to every man as renders it his own fault if he doth not attain to eternal life.

BAY, } The name of the tree which is
BAYS. } translated laurel, and of which honorary garlands were anciently made. Fr. *baye*, a berry, Lat. *bacca*. To wear the *bays*, is, in poetical language, to be pre-eminent in excellence. The honorary crown or garland, which was bestowed as a prize for literary or military, or indeed any other species of merit, bearing this name.

I have seen the wicked in great power, and spreading himself like a green *bay*-tree. *Bible.*

See where she sits upon the grassie greene,
(O seemely sight!)
Yclad in scarlet, like a mayden queene,
And ermines white:
Upon her head a cremosin coronet,
With damaske roses, and daffadillies set;
Bay-leaves betweene,
And primroses greene,
Embellish the sweete violet.
Spenser. Shepheard's Calender

So him they led through all their streetes along,
Crowned with garlands of immortal *baies*,
And all the vulgar did about them throng,
To see the man, whose everlasting praise,
They all were bound to all posteritie to raise
Spenser.

I can but laugh at both,
That strive and storme with stirre outrageous,
For her, that each of you alike doth loth,
And loves another, with whom now she go'th,
In lovely wise, and sleepes, and sports, and playes;
Whilest both you here, with many a cursed oth,
Sweare she is yours, and stirre up bloodie frayes,
To win a willow bough, whilest other weares the *bays*.
Id.

See how the stubborn damsell doth deprave
My simple meaning with disdaynfull scorn;
And by the *bay* which I unto her gave;
Accompts myself her captive quite forlorne.
The *bay* quoth she, is of the victors born,

Yielded them by the vanquisht as theyr meeds,
And they, therewith, doe poetes heads adorne,
To sing the glory of their famous deeds.
But sith she will the conquest challenge needs,
Let her accept me as her faithful thrall,
That her great triumph, which my skill exceeds,
I may in trump of fame blaze over all.
Then would I decke her head with glorious *bays*,
And fill the world with her victorious prayse. *Id.*

To take a boat in a pleasant evening, and with musick to row upon the waters, which Plutarch so much applaudes, Ælian admires, upon the river Peneus, in those Thessalian fields beset with green *bayes*, where birds so sweetly sing, that passengers, enchanted as it were with their heavenly musick, forget forthwith all labours, care and grief; or in a gundilo, through the grand canale in Venice, to see those goodly palaces, must needs refresh and give content to a melancholy dull spirit.
Burton. Anat. Mel.

So up they rose, while all the shepherd-throng
With their loud pipes a country triumph blew,
And led their Thirsil home with joyful song:
Mean time the lovely nymph, with garlands new,
His locks in *bay* and honour'd palm-tree bound,
With lilies set, and hyacinths around;
And lord of all the year, and their may-sportings, crown'd. *Fletcher's Purple Island.*

Like thunder 'gainst the *bay*,
Whose lightning may enclose but never stay,
Upon his charmed branches. *Id. Faith. Shepherdess.*

That name I say in whom the muses meete,
And with such heate his noble spirits raise,
That kings admire his verse, whil'st at his feete,
Orpheus his harpe, and Phœbus casts his *bays*.
F. Beaumont.

Till critics blame, and judges praise,
The poet cannot claim his *bays*. *Swift.*

Say, Britain! could you ever boast
Three poets in an age at most?
Our chilling climate hardly bears
A sprig of *bays* in fifty years,
While ev'ry fool his claim alleges,
As if it grew in common hedges. *Id.*

Bid the warbling nine retire;
Venus string thy servant's lyre;
Love shall be my endless theme,
Pleasure shall triumph over Fame:
And when these maxims I decline,
Apollo! may thy fate be mine;
May I grasp at empty praise,
And lose the nymph to gain the *bays*. *Prior.*

The polish'd pillar diff'rent sculptures grace,
A work outlasting monumental brass.
Here smiling loves and bacchanals appear,
The Julian star, and great Augustus here.
The doves, that round the infant poet spread,
Myrtle and *bays*, hang hov'ring o'er his head. *Pope.*

Yet suffer me, thou bard of wondrous meed,
Amid thy *bays* to weave this rural weed. *Gay.*

BAY', *adj.* BAY'ARD, BAY'ARDLY. } Lat. *badius*, old Fr. *baye*, *bai*, *rouge brun*, Ital. *baio*, Gr. βαις, or βαιον, the branch of the palm. Does it refer to the color of the bark? or the tenacity with which the branch adheres to the trunk; to intimate boldness, determination, or dogged firmness? It is applied both to signify the color and spirit of a horse; and also to men who are bold, blind, and self-willed. A *bay* horse is one whose color inclines to a chestnut; and this color is various, either a light *bay*, or a dark *bay*, according as it is less or more deep. All *bay* horses are commonly called brown by the common people. *Bayard* is another name for a horse of this complexion. It was likewise the appellation of a noted blind horse in the old romances; whence, perhaps, the proverbial expression 'as bold as blind Bayard.' Rinaldo's horse, in Ariosto, is called *Baiardo*. There is an allusion to the proverb just cited, in the old play entitled Match at Midnight, 'Do you hear, Sir Bartholomew *Bayard?* But leap before you look.' Perhaps, says Nares, the whole proverb might be 'as bold as blind *Beyard*, that leaps before he looks,' in allusion to another proverb, 'look before you leap.' *Buyard* occurs in R. Brunne, and *bay* in Chaucer.

Upon a stede *bay*, trapped in steele.
Ye ben as bold as is *Bayar* the blind,
That blondereth forth, and peril careth non,
He is as bold to run against a ston,
As for to go besides in the way. *Chaucer.*

But as *baiarde* the blind stede
Till he fall in the ditche a midde
He gothe there no man will hym bidde,
He stant so fer forthe out of rewle,
There is no witte that maie hym reule.
Gower. Conf. Ann.

I marvel not so much at blind *Bayards*, which neuer take God's book in hand.
Bernard Gilpin's Sermons.

Who is more bold than the *bayard* blind?
Mirror for Magistrates.

BAY, *v.* & *n.* From the Fr. *abboi*, which signifies the last extremity. Its primary sense is the barking of a dog at hand, and relates to the condition of a stag, when the hounds are almost upon him. It does not refer to the assailant, but to his selected victim, and in the moment of his utmost peril. It is figuratively employed to describe the state of any thing surrounded by enemies. It is sometimes applied to the simple barking of a dog at any object. In Spenser it is used in the sense of parley, before surrendering.

So well he woo'd her, and so well he wrought her,
With faire entreatie and sweet blandishment,
That at the last unto a *bay* he brought her,
So as she to his speeches was content
To lend an eare, and softly to relent. *Spenser*

Like dastard curres that, having at a *bay*
The salvage beast embost in wearie chace,
Dare not adventure on the stubborne pray,
Ne byte before, but move from place to place,
To get a snatch when turned is his face. *Id.*

Here wast thou *bay'd* brave hart,
Here didst thou fall, and here thy hunters stand,
Sign'd in thy spoil and crimson'd in thy Lethe;
O world, thou wast the forest to this hart,
And this, indeed, O world, the heart of thee
How like a deer, stricken by many princes,
Dost thou here lie. *Shakspeare.*

What, shall one of us,
That struck the foremost man of all this world,
But for supporting robbers; shall we now
Contaminate our fingers with base bribes?
And sell the mighty space of our large honours,
For so much trash as may be grasped thus?
I had rather be a dog, and *bay* the moon,
Than such a Roman. *Id*

We are at the stake,
And *bay'd* about with many enemies. *Id.*

I was with Hercules and Cadmus once,
When in the wood of Crete they *bay'd* the boar
With hounds of Sparta. *Id.*

If he should do so,
He leaves his back unarm'd, the French and Welsh
Baying him at the heels. *Id.*

This ship, for fifteen hours, sate like a stag among hounds at the *bay*, and was sieged and fought with, in turn, by fifteen great ships.
Bacon's War with Spain.

Fair liberty, pursued and meant a prey
To lawless power, here turn'd, and stood at *bay*.
Denham.

Nor flight was left, nor hopes to force his way;
Embolden'd by despair, he stood at *bay*;
Resolv'd on death he dissipates his fears,
And bounds aloft against the pointed spears.
Dryden.

The hounds at nearer distance hoarsely *bay'd*;
The hunter close pursued the visionary maid;
She rent the heav'n with loud laments, imploring aid.
Id. Fables.

Joyful he knew the lamp's domestic flame
That trembled thro' the window; cross the way
Darts forth the barking cur and stands at *bay*. *Gay.*

Sweet was the sound, when oft, at evening's close,
Up yonder hill the village murmur rose;
There as I pass'd with careless steps and slow,
The mingling notes came soften'd from below;
The swain responsive as the milkmaid sung,
The sober herd that low'd to meet their young;
The noisy geese that gabbled o'er the pool,
The playful children just let loose from school;
The watch-dog's voice that *bay'd* the whisp'ring wind,
And the loud laugh that spoke the vacant mind;
These all in sweet confusion sought the shade,
And fill'd each pause the nightingale had made.
Goldsmith's Deserted Village.

But the hound *bayeth* loudly,
The boar's in the wood,
And the falcon longs proudly
To spring from her hood. *Byron.*

Bay. To bathe.

He feedes upon the cooling shade, and *bayes*
His sweatie forehead in the breathing wind.
Spenser. Faerie Queene.

BAY, from the old Saxon *bugan*, *bygan*, to bow or bend; it is applied to the curvings of a shore; to recesses in barns, buildings, or windows, so say Skinner and Minshew; Nares thus defines it: a principal division in a building; probably, as Dr. Johnson conjectured, a great square, in the framework of the roof, whence, barn of three bays, is a barn twice crossed by beams; in large buildings having the Gothic framework to support the roof, like Westminster Hall, the *bays* are the spaces between the supporters; houses were estimated by the number of bays; as a term among builders, it also signified every space left in the wall, whether for door, window, or chimney. See *Chambers's Dictionary and Kersy*.

Coles, in his Latin Dictionary, makes a *bay* a space of a definite size; 'a *bay* of building, mensura vigintiquatuor pedum,' i. e. the measure of twenty-four feet.

Bay-Window, from *bay*, *supra*; not according to Minshew, from its resemblance to a *bay* on a coast, or round, for it was usually square; bow-window has now effectually supplanted it, in practice, and implies a semi-circular sweep, like a bow. Mr. Tyrwhitt, in his Glossary to Chaucer, thus explains it:—'a large window, probably so called because it occupied a whole *bay*, i. e. the space between two cross-beams.' We have the authority of an old dictionary for asserting that a *bay-window* meant also a balcony.

And there, beside, within a *bay-window*,
Stood one in green, ful large of head and length,
And beard as black as feathers of the crow.

There stands in sight an isle, hight Tenedon,
Rich, and of fame, while Priam's kingdom stood;
Now but a *bay*, and rode unshure for ship. *Surrey.*

Like as a ship that through the ocean wyde
Directs her course unto one certaine coast
Is met of many a counter-winde and tyde,
With which her winged speed is let and crost,
And she herself in stormie surges tost;
Yet making many a borde and many a *bay*,
Still winneth way, nor hath her compasse lost;
Right so it fares with me in this long way,
Whose course is often stay'd, yet never is astray.
Spenser.

I'd have some pleasant lodging i' the high street, sir;
Or if 'twere near the court, sir, that were much better;
'Tis a sweet recreation for a gentlewoman
To stand in a *bay-window* and see gallants. *Middleton.*

We have also some works in the midst of the sea, and some *bays* upon the shore for some works, wherein is required the air and vapour of the sea. *Bacon.*

A reverend Syracusan merchan.,
Who put unluckily into this *bay*. *Shakspeare.*

If this law hold in Vienna ten years, I'll rent the fairest house in it after threepence a *bay*. *Id.*

Why it hath *bay-windows* transparent as barricadoes, and the clear stones towards the south-north are as lustrous as ebony. *Id.*

Such murmur fill'd
The assembly, as when hollow rocks retain
The sound of blust'ring winds, which all night long
Had rous'd the sea, now with hoarse cadence lull
Seafaring men o'er-watch'd, whose bark by chance
Or pinnace anchors in a craggy *bay*
After the tempest. *Milton.*

The *bay* of St. Nicholas, where they first put in, lieth in sixty-four degrees, called so from the abbey there, built of wood, wherein are twenty monks, unlearned, as then they found them, and great drunkards: their church is fair, full of images and tapers. There are besides but six houses, whereof one built by the English. In the *bay*, over against the abbey, is Rose Island, full of damask and red roses, violets, and wild roses. *Milton's History of Muscovia.*

Hail, sacred solitude! from this calm bay,
I view the world's tempestuous sea.
Roscommon.

Here in a royal bed the waters sleep,
When tir'd at sea, within this *bay* they creep.
Dryden.

Some of you have *bay*.

Blake having heard that a Spanish fleet of seventy ships, much richer than the former, had taken shelter in the Canaries, immediately made sail towards them. He found them in the *bay* of Santa Cruz, disposed in a formidable posture. The *bay* was secured with a strong castle, well provided with cannon, besides seven forts in several parts of it, all united by a line of communication, manned with musqueteers.
Hume's History of England.

They gain by twilight's hour their lonely isle,
To them the very rocks appear to smile,
The haven hums with many a cheering sound,
The beacons blaze their wonted stations round,
The boats are darting o'er the curly *bay*,
And sportive dolphins bend them through the spray.
Even the hoarse sea-bird's shrill discordant shriek,
Greets like the welcome of his tuneless beak!
Beneath each lamp that through its lattice gleams,
Their fancy paints the friends that trim the beams.
Byron.

BAY, in botany. See LAURUS.

BAY, in hunting, is when the dogs have earthed a vermin, or brought a deer, boar, or the like, to turn head against them. In this case, not only the deer, but the dogs are said to bay. It is dangerous going in to a hart at bay, especially at rutting time; for then they are fiercest.

BAY OF ISLANDS, a bay on the east coast of New Zealand, so called from the number of islands off the shore. Here is good anchorage; high water takes place about eight o'clock at the full and change of the moon, when the perpendicular rise of the tide is from six to eight feet. Abundance of fish frequent the bay, which the natives take with enormous nets made of a kind of grass, five fathoms deep, and 300 or 400 fathoms long. Round their villages nets lie in heaps, like hay-cocks covered with thatch, to resist the weather. All kinds of refreshment may be had here. Long. 135° 38′ W., lat. 35° 18′ S.

BAY OF ISLES, a bay on the east coast of the island of Georgia, so called from a great number of small islands in and before it. Long. 37° 30 W., lat. 54° 3′ S.

BAY COLOR, a sort of red inclining to chestnut, is formed from the Latin baius, and that from the Greek βαιος, a palm branch; so that badius or bay properly denotes color phœniceus. Hence, among the ancients, the horses now called bays, were denominated equi palmati.

BAY, PLUM. See GUAIAVA.

BAY, ROSE. See OLEANDER.

BAY SALT, a variety of common salt, (muriate of soda), obtained from sea-water, and which is thought to possess peculiar advantages for curing provisions. In the bay of Biscay, on the shores of the Mediterranean, and in the Bahama islands, the process for procuring it is thus simply carried on:—An artificial pond is formed, of ten inches or a foot deep, and carefully lined with clay, at some convenient distance from the sea, so that one end may have a ready communication by means of a sluice, for the purpose of filling when necessary, while at the opposite end the brine pit communicates with smaller and shallower receptacles. In the large reservoir the sea-water is concentrated by evaporation, from the action of the sun and air; and in the smaller ones the process is completed by removing the crust of salt as fast as it may be formed. Thus the salt obtained is deposited in large flattened octohedral crystals which do not deliquesce, in consequence of being free from the muriate of magnesia, with which the common salt is contaminated. The process may be considered as one of the most ancient applications of chemical principles, for in hot climates, and especially in Egypt, it was taught by nature herself. See Pliny lib. xxxi. cap. 7. France is thus furnished with a very profitable article for exportation into other countries. The salt made is of different colors, according to the color of the clay employed in making the pits. That of the French is brown, whence it is said comes the denomination of bay salt, and it is usually sold without further preparation; though in some places they make it white by refining it in large flat cauldrons. The great difficulty which attends the making it in Great Britain arises from the heat of our summer not being sufficiently strong to evaporate a great quantity of sea-water in a small portion of time.

BAYA, in ornithology, Indian grosbeak, or Loxica Indica, rather larger than a sparrow, with yellow brown plumage, yellowish head and feet, a light-colored breast, and a conic beak, very thick in proportion to his body. This bird is very common in Hindostan; and described as surprisingly sensible, faithful, and docile. In a state of nature, it builds on the highest tree which it can find; generally on the palmyra or Indian fig-tree, preferring that which overhangs a well or rivulet. There it suspends its bottle-shaped nest, so as for it to rock with the wind, and places it with its entrance downwards, to secure it from birds of prey. It is taught with ease to fetch a piece of paper, or any small thing which his master wants. Almost incredible tales are told of its docility; and it is confidently asserted, that if a house or any other place be shown to him once or twice, he will carry a note thither immediately, on observing a proper signal. They are also trained by the youths of Benares to pluck off the pieces of gold called ticas, placed by way of ornament between the eye-brows of their mistresses, which they bring in triumph to the lover. The flavor of the eggs is said to be exquisite.

BAYAMO, a town on the east part of Cuba, on the river Estreo, which forms a bay on the coast, twenty miles below the town. It gives name to a channel between the small islands and rocks called Jardin de la Reyna, on the north-west, and the shoals and rocks which line the coast on the south-east, situated eighty miles W. S. W. of St. Jago Long. 76° 50′ W., lat. 20° 45′ N.

BAYANO, a considerable river of South America, in the kingdom of Terra Firma, and province of Panama, which rises in the province of Darien, and falls into the sea twenty-four miles from the bay of Panama. Its mouth is in long. 78° 55′ W., lat 9° 3′ N.

BAYARD (Peter du Terrail de), esteemed by his contemporaries the model of soldiers and men of honor, and denominated 'the knight without fear and without reproach,' was descended from an ancient and noble family in Dauphiné. He was with Charles VIII. at the conquest of the kingdom of Naples; where he gave remarkable proofs of his valor, especially at the battle of Fornova. He was dangerously wounded at the taking of Brescia; and there restored to the daughters of his host 2000 pistoles, which their mother had directed them to give him in order to prevent the house from being plundered. At his return to France he was made lieutenant-general of Dauphiné. He fought by the side of Francis

I. at the battle of Marignan; and that prince afterwards insisted on being knighted by his hand, after the manner of the ancient knights. The chevalier Bayard defended Mezieres during six weeks against Charles V.'s army. In 1524, at the retreat of Rebec (the general Bonnivet having been wounded and obliged to quit the field), the conduct of the rear was committed to Bayard, who, though so much a stranger to the arts of a court that he never rose to the chief command, was always called, in time of real danger, to the posts of greatest difficulty and importance. He put himself at the head of the men at arms: and animating them by his presence and example to sustain the whole shock of the enemy, he gained time for his countrymen to make good their retreat. But in this service he received a wound which he immediately perceived to be mortal; and being unable to continue on horseback, ordered an attendant to place him under a tree, with his face towards the enemy; then fixing his eyes on his sword, which he held up instead of a cross, he addressed his prayers to God; and in this posture calmly waited the approach of death. Bourbon, who led the foremost of the enemy's troops, found him in this situation, and expressing his regret and pity at the sight, 'Pity not me,' cried the high spirited chevalier, 'I die as a man of honor ought, in the discharge of my duty; they indeed are objects of pity, who fight against their king, their country, and their oath.' The marquis of Pescara, passing soon after, manifested his admiration of Bayard's virtue, as well as his sorrow for his fate, with the generosity of a gallant enemy; and finding that he could not be removed with safety from that spot, ordered a tent to be pitched, and appointed proper persons to attend him. He died, notwithstanding their care, as his ancestors for several generations had done, in the field of battle. Pescara ordered his body to be embalmed, and sent to his relations; and such was the respect paid to military merit in that age, that the duke of Savoy commanded it to be received with royal honors in all the cities of his dominions.

BAYAS, a town at the foot of Mount Amanus, on the gulf of Issus (now of Scanderùn), the key to the celebrated defile (the Pylæ Amanicæ of the ancients), between it and Alexandretta (Scanderùn). The neighboring country is fertile, and the mountains, in summer time, a delightful retreat. It is exactly opposite the Ayàs, the ancient Ægæ, where the survey of the southern coast of Asia Minor, by captain Beaufort, in 1812, was unfortunately terminated. The Aghàs, in this and the neighbouring places, have long bid defiance to the authority of the Porte. See *Beaufort's Karamania.*

BAYAZID, or BAJAZID, a city of Turkish Armenia, in the pachalic of Erzerum, on the declivity of a mountain, the summit of which, as well as the whole of this place, is strongly fortified. It contains two churches, three mosques, and an ancient monastery called Karu Rilleesea, celebrated for its beautiful architecture. The inhabitants, who amount to about 30,000, are esteemed the most handsome and warlike people in Armenia. The majority are Turks. Distant fifty miles S. S. W. of Erivan, and 140 east of Erzerum.

BAYEN (Peter), a celebrated French chemist, was born in 1725, at Chalons sur Marne. Having received a classical education, he studied pharmacy; and, during the seven years' war, was chief apothecary to the French army in Germany. He was afterwards employed in analysing the mineral waters of France, on completing which, he settled at Paris, where he pursued his chemical experiments with great reputation, till his death in 1801. He pursued a tedious but certain mode of analysing minerals, by exposing them, without being reduced to powder, to the action of sulphuric acid at the temperature of the atmosphere; after this action had continued for a length of time, he got by lixiviation the sulphates formed by the combination of the acid with the different component elements of the stone. He did not make use of the trituration of the stone to an impalpable powder, nor its fusion with caustic potash, which facilitate the action of acids, and which are used with so much advantage at present. The account he has published of his analysis will, nevertheless, be instructive to the chemical student. His chemical tracts have been collected in 2 vols. 8vo.

BAYER (John), a German lawyer and astronomer of the latter part of the sixteenth and beginning of the seventeenth century, but in what particular year or place he was born, is not certainly known: however, his name will be ever memorable in the annals of astronomy, on account of his excellent work, published in 1603, under the title of Uranometria, being a complete celestial atlas, or large folio charts of all the constellations, with a nomenclature collected from all the tables of astronomy, ancient and modern. By means of the Greek letters, which he used as marks of their relative magnitudes, the stars of the heavens may, with as great facility, be distinguished and referred to, as the several places of the earth are by means of geographical tables; and our celestial globes and atlasses have ever since retained this method. Astronomers, in speaking of any star in the constellation, denote it by saying it is marked by Bayer, α, or β, or γ, &c. He greatly improved and augmented this work by subsequent study. At length, in 1627, it was re-published under a new title, viz. Cœlum Stellatum Christianum, i.e. the Christian Stellated Heaven, or the Starry Heavens Christianised; in this edition the Heathen names and characters, of figures of the constellations, were rejected, and others taken from the scriptures, were inserted in their stead, an innovation, however, too great for general reception. In later editions of the work (in those of 1654 and 1661), the ancient figures and names were restored.

BAYER (Theophilus Sigfred), a learned philologer and antiquarian, born at Konigsberg in 1694, applied himself successfully to the study of the eastern languages, particularly the Chinese, of which he acquired a great knowledge. When about twenty-three years of age, he was appointed librarian at Konigsberg. In 17[illegible] accepted of an invitation to Petersburgh, and there made professor of Greek and Roman antiquities. In 1730, he published a very curious and learned work, entitled Museum Sinicum, 2 vols. 8vo. He died at Petersburgh in 17[illegible]

BAYEUX, a considerable town of France (the Beducassum and Bajoce, of ancient geography), in the department of Calvados, and late province of Normandy. It was formerly the capital of Bessin, and is still a bishop's see, whose jurisdiction extends over all the department. The cathedral church is accounted one of the finest in France, and contains a celebrated piece of tapestry, representing the conquest of England by William I., supposed to have been the work of his queen Matilda. It consists of a web of linen, 442 feet in length, and about two feet in breadth. It is situated on the river Aure, four miles from the English Channel; and carries on a good trade in corn, cattle, hemp, and butter, as well as in its own manufactures of lace, camblets, stockings, and leather. Inhabitants about 10,000.

BAYEUX (George), an advocate at Caen, who obtained the prize from the academy at Rouen for a poem on Filial Piety. He translated the Fasti of Ovid, on which he added valuable notes, printed in 4 vols. 8vo. He wrote also Reflections on the Reign of Trajan, 4to. He was, however, unfortunate, and having been imprisoned at Orleans, fell in the massacre which took place there in 1792.

BAYLA, or BELA, a town of Persia, capital of the district of Lus, in the province of Mekran. It is situated on the north-east banks of the river Pooralie, and about a third of it is surrounded by a good mud wall. It consists of above 2000 mud and wood houses, of which 250 or 300 are inhabited by Hindoos, who are well treated here. Bayla is, on the whole, a neat town, the residence of the jam, or chief of Lus, who seems dependent on the khan of Kelat. His durbar, or hall of audience, is a very ordinary apartment. The cemetery of the jam and his family contains several curious tombs, ornamented with black and white pebbles, arranged in short quotations from the koran, and encircled with wreaths of the same substance, which produce a pleasing effect. Distant 293 miles north of Kelat.

BAYLE (Peter), author of the Historical and Critical Dictionary, was born November 18, 1657, at Carlat, in France, where his father John Bayle was a protestant minister. In 1666 he went to the protestant university at Puylaurens, and in 1669 removed to that of Toulouse, whither protestants at that time frequently sent their children to avail themselves of the learning of the Jesuits; but here, to the great grief of his father, he embraced the Romish religion; being, however, soon sensible of his error, he left that university, and went to study at Geneva. After this he was chosen professor of philosophy at Sedan; but that protestant university being suppressed by Louis XIV. in 1687, he was obliged to leave the city, and was soon after chosen professor of philosophy and history at Rotterdam, with a salary of about £45 a year. In 1682 appeared his Letter concerning Comets. And Father Maimbourg having published his History of Calvinism, wherein he endeavours to draw upon the protestants the contempt and resentment of the catholics, Mr. Bayle wrote a piece to confute it. The reputation which he had now acquired, induced the States of Friezland, in 1684, to offer him a professorship in their university; but he wrote them a letter of thanks, and declined the offer. This same year he began to publish his Nouvelles de la republique des Lettres. In 1686 he was drawn into a dispute with the famous Christina queen of Sweden. His Journal for April had noticed a printed letter, supposed to have been written by her Swedish majesty to Chevalier de Terlon, wherein she condemns the persecution of the protestants in France; and had observed, that her tolerant spirit was 'a remainder of protestantism.' This produced a letter to the philosopher, from that singular woman, in which she says, 'You express so much respect and affection for me, that I pardon you sincerely; and I would have you know, that nothing gave me offence but that remainder of protestantism, of which you accused me. I am very delicate upon that head, because nobody can suspect me of it, without lessening my glory, and injuring me in the most sensible manner. My fortune, my blood, and even my life, are entirely devoted to the service of the church; but I flatter nobody, and will never speak any thing but the truth.' Mr. Bayle replied in a subsequent number of his work, to that princess's entire satisfaction. The persecution which the protestants at this time suffered in France affected Mr. Bayle extremely. He made occasionally some reflections on their sufferings in his journal; and some time afterwards he published his Commentaire Philosophique upon these words, 'Compel them to come in;' and in the year 1690 appeared his famous Avis aux Refugiez, &c. which so excited the anger of M. Jurieu, that he charged the author with being a traitor against the state. Bayle retorted with the utmost severity, and Jurieu replied with equal bitterness; till at last the magistracy of Amsterdam enjoined the controversialists not to publish any thing against each other before it had been examined by Mr. Boyer, the pensionary of Rotterdam. In Nov. 1690, Bayle advertised a Scheme for a Critical Dictionary. The public not approving his first plan, he threw it into a different form; and the first volume was published in August, 1695, the second in October following. The work at last was extremely well received by the public; but it engaged him in fresh disputes, particularly with M. Jurieu and the Abbé Renaudot. Jurieu endeavoured to engage the ecclesiastical assemblies to condemn the dictionary; and presented it to the senate sitting at Delft, but they took no notice of the affair. The consistory of Rotterdam granted Mr. Bayle a hearing; and after having heard his answers to their remarks, declared themselves satisfied. Jurieu made another attempt with the consistory in 1698; and so far prevailed with them, that they exhorted Mr. Bayle to be more cautious with regard to his principles in the second enlarged edition of his dictionary, which was published in 1702. Bayle was a most indefatigable writer. In one of his letters to Maizeaux, he says, that since his twentieth year, he hardly remembers to have had any leisure. His intense application contributed to impair his constitution, and to increase a pulmonary disorder which had cut off several of his family. Judging it to be mortal he would take no remedies. He died the twenty-eighth of De-

cember, 1706, after he had been writing the greatest part of the day. Voltaire says of the Critical Dictionary 'it is the first work of the kind in which a man may learn to think;' and remarks, that 'the decree of the parliament of Toulouse, when it declared his will valid in France, notwithstanding the rigor of the laws,' added, 'that such a man could not be considered as a foreigner.' Bayle, however, has been more correctly characterised as a sophist rather than a philosopher. With great powers of distinguishing truth from falsehood, he pushed enquiry into universal doubt, and remained in doubt because he thought indifferentism to truth a virtue, and therefore cultivated it. In private life he is said to have been an unassuming and temperate man; but his writings abound with the bigotry of scepticism, and contain not a few uncharitable insinuations against that religious zeal which he never felt: moreover, he is notoriously indelicate, and seems as if laboring to atone for distracting by debauching the tyro's mind. Lord Lyttleton finely expostulates with him under the assumed character of Mr. Locke, in his Dialogues of the Dead, vol. ii. Dialogue 24. p. 315. 'You have endeavoured,' says this excellent writer, 'and with some degree of success, to shake those foundations, on which the whole moral world, and the great fabric of social happiness, entirely rest; how could you, as a philosopher, in the sober hours of reflection, answer for this to your conscience, even supposing you had doubts of the truth of a system, which gives to virtue its sweetest hope, to impenitent vice its greatest fears, and to true penitence its best consolations; which restrains even the least approaches to guilt, and yet makes those allowances for the infirmities of our nature, which the stoic pride denied to it, but which its real imperfection, and the goodness of its infinitely benevolent Creator, so evidently require?'

BAYLY (Lewis), author of the Practice of Piety. He was born at Caermarthen in Wales, educated at Oxford, made minister of Evesham in Worcestershire, about 1611, became chaplain to king James, and was promoted to the see of Bangor in 1616. His celebrated book was dedicated to Charles, prince of Wales; in 1734 it had reached the fifty-ninth edition. He died in 1632.

BAYNES (John), an English lawyer, born at Middleham, in Yorkshire, in 1758. He received the first part of his education at Richmond school, and afterwards went to Trinity College, Cambridge, from whence he removed to Gray's Inn. He became a member of the Constitutional Society, and wrote a number of anonymous pieces, chiefly political, in prose and verse. There has also been attributed to him an Archæological Letter on the subject of the poems printed by Chatterton under the name of Rowley, addressed to dean Milles. He proposed the republication of lord Coke's tracts, a design prevented by his death in 1787.

BAYNES (Sir Thomas), an English physician, born about 1622, was educated at Christ's College, Cambridge, where he applied to the study of physic. He afterwards became professor of music at Gresham College; and travelled with Sir John Finch to Italy and Constantinople. He died at Constantinople in 1681, much lamented by his companion, who survived him but a short time. They left between them £4000 to Christ's College.

BAY'ONET, *v.* & *n.* Fr. *bayonette*. A short sword or dagger fixed at the end of a musket, by which the foot hold off the horse, so called because the first bayonets were made at Bayonne, in France.

One of the black spots is long and slender, and resembles a dagger or *bayonet*. *Woodward*

You send troops to sabre and *bayonet* us into submission. *Burke*

Not a single head
Was spared—three thousand Moslems perish'd then,
And sixteen *bayonets* pierced the seraskier. *Byron*

You should but give few cartridges to such
Troops as are meant to march with greatest glory on.
When matters must be carried by the touch
Of the bright *bayonet*, and they all should hurry on,
They sometimes, with a hankering for existence,
Keep merely firing at a foolish distance. *R.*

The town was entered: first one column made
Its sanguinary way good—then another.
The reeking *bayonet* and the flashing blade
Clashed 'gainst the scimitar.

BAYONETS were formerly made with a round handle fitted to the bore of a firelock, and to be fixed there after the soldier had fired; but they are now made with iron handles and rings that go over the muzzle, and are screwed fast, so that the soldier fires with his bayonet on the muzzle of his piece, and is ready at once to act. This use of the bayonet fastened on the muzzle was a great improvement, first introduced by the French; to which, according to M. Folard, they owed a great part of their victories for some time afterwards; and to the neglect of this, in succeeding wars, and trusting to their fire, the same author attributes most of the losses they sustained. Of late the bayonet has come into very general use; and some battles have been won by it without firing a shot. It was much encouraged by Frederick the Great, who caused an inch and a half to be added to the length of the Prussian bayonet.

A French writer, in a work entitled L'Essai général de la Tactique, has proposed a method of exercising soldiers in a species of fencing or tilting with this weapon. But, as another very sensible author, Mauvillon, in his Essai sur l'Influence de la Poudre à Canon dans l'Art de la Guerre Moderne, justly asks, how can any man tilt or fence with so cumbrous an instrument and so difficult to be handled, as the firelock? It seems probable that great advantage may be obtained by a person who has been taught to use such a weapon scientifically, when contending with an individual; but the niceties of parrying are not applicable to the charge in line; a firm grasp and a quick and steady thrust are what is required.

BAYONNA, a well-built town of the province of Galicia, in Spain, situated on a small bay of the Atlantic. It contains a collegiate church, a Franciscan convent, and a hospital, and is defended by a castle, with a governor and a small garrison. The inhabitants obtain

their livelihood by fishing. The Bay of Bayonna forms part of the Gulf of Vigo, nine miles south-west of Vigo, and twelve north-west of Tuy.

Bayonna Isles, or Islas de Seyas de Bayona et D'Estelas, two small islands, with a number of insular rocks, situated in the Atlantic, at the entrance of the Bay of Bayonna, off the coast of Galicia, in Spain. They were called by the ancients Insulæ Deorum, or the Isles of the Gods, and lie six miles N. N. W. of Bayonna.

BAYONNE, a rich, populous, and flourishing commercial town of France, in the department of the Lower Pyrenees. It is seated near the mouth of the Adour, which forms a good harbour, and is divided into three parts: the great town on this side the Nive; the little town between the Nive and the Adour; and the suburbs of St. Esprit, chiefly inhabited by Jews, beyond this last river. A citadel, constructed by Vauban, on the top of an eminence in the suburb, commands both the harbour and the town, which are further defended by small redoubts. A wooden drawbridge, which allows vessels to pass, and where a small toll is levied, connects the suburbs with the town. The ancient cathedral is remarkable for the height of the nave, and the delicacy of the pillars which support it. The quay is an elegant and frequented promenade; but the most beautiful part of the city is the Place de Grammont. The bishop was formerly suffragan of the archbishop of Auch; he is now under the archbishop of Toulouse, and exercises jurisdiction over three departments, those of the Upper and Lower Pyrenees and of the Landes. Bayonne, before the revolution, was the seat of a provincial tax-office, and court of justice. At present it is the largest though not the chief town of the Lower Pyrenees, and the head of the most western arrondissement, which consists of seven cantons, and contains 70,000 inhabitants. An extensive commerce is carried on here with Spain, in which French and foreign goods are given in exchange for wood, iron, fruit, and the precious metals. The principal of the maritime trade is the cod and whale fishery; in these branches from thirty to forty ships of 250 tons average, were lately employed. Masts and other wood for ship-building, brought from the Pyrenees, are exported to Brest and other ports of France. Hams, wines, and chocolate, are exported in great quantities to various parts. The military weapon called the bayonet was invented here in the seventeenth century. The language of the people is the ancient Biscayan or Basque. Forty-four miles W. N. W. of Pau, and 518 S. S. W. of Paris. *Long.* 1° 24′ W., lat. 43° 29′ N. Inhabitants about 13,000.

Bayonne Bay, or La Mer des Basques, a part of the Bay of Biscay washing the shores of the district of Labour in the south of France.

BAYREUTH, or Bareith, a principality of Germany, formerly included in the Circle of Franconia; now forming a part of the kingdom of Bavaria. It is bounded by the Upper Palatinate and Bohemia on the east, and by the territories of Nuremberg and Anspach south. Its extent is estimated at 1760 square miles, and its population at 200,000 souls. Oberland is a hilly region: the climate is cold, and much of the soil barren, but it still affords good pasturage, and black cattle of a superior breed and sheep are reared here. The lower division, Unterland, is flat, and in some parts sandy; but affords much fertile soil, and good crops of grain and tobacco. The last is sent in great quantities to Hamburgh and Bremen. Bayreuth is not destitute of minerals; iron and marble are found in Oberland; flax also constitutes a considerable production here, in spinning and working which into linen as well as into lace, a large portion of the population is employed. At the peace of Tilsit, Buonaparte appropriated this principality and annexed it to the kingdom of Bavaria in 1810. The upper division is included in the Circle of the Maine, the lower in that of the Rezat.

Bayreuth, or Bareith, the capital, is situated near the Maine, and is a handsome town with broad and regular streets, entered by six gates. Among the public buildings which deserve notice, are the old and new castles, the convents and churches, the barracks, the mint, and the gymnasium. Its chief manufactures are cloth, earthenware, and tobacco-pipes. It is about fifty miles north of Augsburg, in N. lat. 49° 54′, and E. long. 11° 17′

BAYS, in antiquity. See Bay.

BAYZE, Bays, or Baize, was first introduced into England, with says, serges, &c. by the Flemings; who, being persecuted by the duke of Alva for their religion, fled hither about the fifth of queen Elizabeth's reign; and had afterwards peculiar privileges granted them by act of parliament 12 Charles II. 1660. The exportation of bayze was formerly much more considerable than now, the French having learnt to imitate it. The English bayze, however, is still in request in Spain and Portugal, and even in Italy.

BAY′ZE. See Baize.

BAZA, or Baça, a town of Spain. See Baça.

Baza, Hoya de, See Baça.

BAZ′AAR, *n. s.* Persian *buzzar*, the market, now written *bazaar*, in the commercial language of the East Indies. A constant market; a kind of covered market.

This noble city (Cashan) is in compass not less than York or Norwich, about four thousand families being accounted in her. The houses are fairly built. The *buzzar* is spacious and uniform, furnished with silks, damasks, and carpets of silk.

Sir T. Herbert's Travels, (edit. 1677 p.) 223.

Bazar, Bazaar, or Basar, a denomination originally given by the Turks and Persians to a kind of exchange, or places where their finest stuffs and miscellaneous wares are sold. These are also called bezesteins. The word is of Arabic origin, where it denotes sale, or exchange of goods. Some of the eastern bazars are open, like the market-places in Europe, and serve for the same uses, particularly for the sale of the bulky commmodities. Others are covered with lofty ceilings, or domes, pierced to give light; and in these the jewellers and other dealers in rich wares, have their shops. The bazar of Ispahan is one of the finest places in Persia; yet, notwithstanding its magnificence, it is excelled by the bazar of Tauris, which is the largest that is known, having several times held

30,000 men ranged in order of battle. At Constantinople there are an old and new bazar, which are large square buildings, covered with domes, and sustained by arches and pilasters; the former chiefly for arms, harness, and the like; the latter for goldsmiths, jewellers, furriers, and all sorts of manufactures. See ALEPPO.

BAZAS, a town of France, in the department of the Gironde, and late province of Guienne. It is built on a rock, and lies thirty miles south-east of Bourdeaux. Inhabitants about 5000. It was formerly the bishop's see of a very extensive diocese.

BAZAT, or BAZA, in commerce, a long fine-spun cotton, which comes from Jerusalem, whence it is also called Jerusalem cotton.

BAZEEGURS, a tribe of Indians, inhabiting different parts of Hindoostan, and recognised by several appellations, as Bazeegurs, Panchperees, Kunjura, or Nuts; they follow a mode of life distinguishing them from the Hindoos, and abstain from intermixing their families with them. The name Bazeegur is said to signify a juggler, and some etymologists find a derivation of conjuror from kunjura. They are found partly in wandering tribes, and partly adhering to fixed residences.

The Bazeegurs are divided into seven castes, Charee, Athbhyeea, Bynsa, Purbuttee, Kalkoor, Dorkinee, and Gurgwar; but all the castes intermarry. Their own historical traditions trace their descent from four brothers, who, finding it difficult to provide for their followers, resolved to separate, and direct their course respectively to each quarter of the world; in consequence of which, one of them, named Sa, arrived in Bengal, from Gazeepour or Allahabad. His first abode was at Hoogly, and having governed his tribe peaceably during many years, he died at Uncourpoor. Sa left three sons who succeeded each other, and the succession regularly passed through several generations, and to Munbhungee, about fifteen or twenty years ago. At that time, some of the castes considered a woman called Toota as their chief; but the power ascribed to her seems merely nominal. Munbhungee, however, would not suffer any of Toota's people to remain in the territory occupied by his sect; and the latter were equally jealous of the former.

The features of the Bazeegurs do not decidedly differ from those of other tribes around them. Some of their women are reputed beautiful, and are by no means scrupulous in forming temporary alliances. They are Mahommedans in food and apparel; some traversing the country as Mahommedan Fakeers: a particular association among them has been accused of sacrificing human victims. Those called Panchperees seem to venerate a female deity, Kali, probably the sanguinary goddess of the Hindoos. The Bazeegurs, properly so called, are circumcised, and have priests to officiate at their marriages and funerals, but their knowledge of the system of Mahomet is very imperfect. They seem to acknowledge an omnipotent being, and believe that all nature is animated by one universal spirit, to which the soul, as a portion of it, will after death be united.

The marriage ceremony among them begins by the bridegroom repairing to the hut of his elect, and calling aloud for her to be delivered to him. A near relation, guarding the door, resists his entrance, and pushes him away, while he is the object of taunts and jocularity; at last the bride is brought forward. Both now receive the exhortation of a priest to practise mutual kindness, and the bridegroom, marking the bride's face with ochre, declares her his wedded wife, and she, on her part, does the same in return. The little fingers of their hands are now joined, and a scene of merriment commences from which the bride alone is spared. This consists chiefly in the progress to intoxication, for these people are addicted to the most immoderate use of spirits; and after copious libations, a cavalcade is formed of the whole party, which moves on to the hut of the bridegroom. Several enigmatical ceremonies are performed before the door; the mother of the bridegroom advances with a siere containing rice, paint, and grass, with which the foreheads of the couple are touched, after being waved around them; and the bride is led into the house, before which there stands a small fresh branch of the mangoe tree in an earthen pot of water. In the evening the bride is conducted to her own hut, when the sober friends of the parties retire; but the majority, and generally with the bridegroom among them, pass the night in a state of insensibility on some neighbouring plain.

The chief occupation of both the male and female Bazeegurs consists in feats of address and agility to amuse the public. The former are very athletic, and the women are taught a species of lascivious dancing. The men are also jugglers, tumblers, &c. The people of each set, or dramatis personæ, go out under a sirdar, or manager of a company, for a definite period, generally a year; but no person can establish a set of actors without permission from the Nardar Boutah, or chief of the Bazeegurs, who receives a proportion of the profits. Each of five sets at Calcutta has a subordinate sirdar or ruler. These sirdars and the chief, apparently constitute a court for the trial of infringements of these regulations; and if, on application of the tongue to a piece of red-hot iron, a suspected person be burnt, he is declared guilty of a fraud, which is expiated by a fine, or by the additional punishment of having his nose rubbed on the ground. The fine being paid, it affords a new opportunity for gratifying the strong propensity implanted in these people for ardent liquors. Sometimes differences are the subject of reference to a larger assembly; where, before commencing the business, both plaintiff and defendant must provide a quantity of spirits proportioned to the importance of the case; the party non-suited bears the whole expense, and the assembly is regaled with the beverage produced.

Some of the females practise physic, and cupping, and perform a kind of tattooing on the skin of the Hindoos of their own sex. The men, besides their usual occupations, collect medicinal herbs, and a certain bud, the latter is dried, and the former prepared by their wives as curatives, especially of female complaints: thus they find employment in the towns, in such vocations, or by the sale of trinkets, though both afford but a

precarious subsistence. Some tribes also exhibit wild beasts to the vulgar, or offer mats fabricated by themselves for sale.

A striking coincidence has been remarked in the mode of life, the vocations, manners, and language of the different sects of these people and those of the gipsies scattered over Europe and Asia. Both the Bazeegurs and gipsies have a chief or king; each has a peculiar language, bearing some reciprocal analogy, and different from that of the people among whom they reside. In India, and in Europe, they are equally an itinerant race; their pursuits, in so far as modified by the manners of countries distant from each other, are alike; for the discrepancies they exhibit may reasonably be ascribed to an insensible acquisition of the habits of those near whom the various tribes of mankind dwell. They are equally indifferent as to the quality of the food serving for their subsistence; and equally ignorant of systematic religious principles. All preserve the strictest adherence to their own sect, and sedulously abstain from intermixtures or intermarriages with those of every nation: and where infringements of these rules are seen, they are to be ascribed more to necessity than inclination. Another resemblance, which has probably been lost in the lapse of time, is supposed to consist in the three-stringed viol, introduced into Europe by the jugglers of the 13th century, which is exactly similar to the instrument now used in Hindostan. On uniting and combining the whole features of resemblance, it does not seem unlikely, that if Asia is their original country, or if they have found their way from Egypt to India, they may also have emigrated farther at a period of remote antiquity, and reached the boundaries of Europe.

BAZGENDGES, in natural history, a substance used by the Turks and other eastern nations in dyeing scarlet. They mix it for this purpose with cochineal and tartar, in the proportion of two ounces of bazgendges to one of cochineal. It seems to be no other than the horns of the turpentine tree. They are found also in China. Many things of this kind were sent over to Mr. Geoffroy at Paris from China, as the substances used in the scarlet dyeing of that country, and they all proved to be the same with the Syrian and Turkish bazgendges, and with the common turpentine horns. The lentisk, or mastic tree, also produces horns of a similar kind; all being occasioned by the pucerons, which make their way into the leaves, to breed their young. See *Reaumur's History of Insects*, vol. vi.

BDELLA, in zoology, a genus of the class arachnides, order acera, family Riciniæ. Generic character: palpi very slender, filiform bent, having a seta at the extremity; eyes four; hind feet the longest.

BDELLIUM, *n. s.* Gr. βδελλιον, Heb. בדלה. An aromatick gum brought from the Levant, used as a medicine and a perfume. *Bdellium* is mentioned both by the ancient naturalists, and in Scripture; but it is doubtful whether any of these be the same with the modern kind.

This *bdellium* is a tree of the bigness of an olive, whereof Arabia hath great plenty, which yieldeth a certain gum, sweet to smell to, but bitter in taste, called also *bdellium*. The Hebrews take the loadstone for *bdellium*. *Raleigh.*

BDELLIUM is a gummy resinous juice, produced by a tree in the East Indies, of which we have no satisfactory account. It is brought into Europe, in pieces of different sizes and figures, externally of a dark reddish brown, somewhat like myrrh; internally it is clear, and not unlike glue. If held in the mouth, it soon becomes soft and tenacious, sticking to the teeth. Laid on a red-hot iron, it readily catches flame, and burns with a crackling noise, and in proportion to its goodness it is more or less fragrant. Near half of its substance dissolves either in water or in spirit of wine; but the tincture made with spirit is somewhat stronger and much more agreeable. Vinegar, or verjuice, dissolves it entirely. The simple gum is a better medicine than any preparation from it. Though one of the weakest of the deobstruent gums, it is sometimes used as a pectoral and an emmenagogue with advantage. Some authors suppose the word translated bdellium (Gen. ii. 12) signifies a precious stone; others fine crystal or steel; and Bochart insists that it denotes pearls, numbers of which are fished near the mouth of the river Pison, in the gulf of Persia.

BE, *v.* } This verb is so remarkably irre-
BE'ING, *n.* } gular, that it is necessary to set down many of its terminations:

Present. *I am, thou art, he is, we are*, &c.
eom, eart, ip, aron, Sax.
Preter. *I was, thou wast* or *wert*, *he was, we were*, &c.
pær, pære, pær pæron, Sax.
The conjunctive mood,
I be, thou beest, he be, we be, &c.
beo, birt, beo, beon, Sax.

Its etymology is as uncertain as its forms are irregular. The simple words to which *be* is prefixed, are used also in their simple form as verbs. When employed as an auxiliary, it renders the verb passive. As a prefix, it appears in many instances to give emphasis to the application of the simple term. As to *bedaub*, to *bepraise*, to *besmear*, and particularly, say the compilers of the Encyclopedia Metropolitana, when derision or contempt is intended, as *becurl*, in Search; *bemuffle*, &c. in Sterne; *beprose*, in Mallet; *bescutcheon*, *betagged*, in Churchill; *betailed*, in Goldsmith. To exist, to have existence. It is also used in our old language, for the preposition *by*, and also for the participle *been*.

And who so saith, and weneth it *be*
A jape, or els a nicete,
To wene that dremes after fal,
Let who so liste a fole me call;
For this trowe I and say for me,
That dreames signifiaunce *be*
Of gude and harme to many wightes,
That dr·men in hir sleep a nightes,
Full many thinges covertly,
That fallen after openly.
Chaucer. Romaunt of the Rose.

Before this world's great frame, in which all things
Are now contain'd found any *beeing* place,
That high eternal pow'r which now doth move
In all these things, mov'd in itself by love.
Spenser. Hymn on Heavenly Love.

BEL. Aye hopeless
To have the courtesy your cradle promis'd,
But to *be* still hot summer's tanlings and
The shrinking slaves of winter.
GUI. Than *be* so,
Better to cease to *be*. *Shakspeare.*

Awake! arise! or *be* for ever fall'n. *Milton.*

The mind is its own place, and in itself
Can make a heav'n of hell, a hell of heav'n.
What matter where, if I *be* still the same,
And what I should be, all but less than he,
Whom thunder had made greater! Here at least
We shall *be* free. *Id.*

Neither did thy wisdom herein proceed in time only; but in degrees; at first thou madest nothing absolute; first thou madest things which should have *being* without life; then those which should have life and *being*; lastly, those which have *being*, life, and reason: so we ourselves in the ordinary course of generation, first live the life of vegetation, then of sense, and reason afterwards. *Hall. Con.*

O Happiness! our *being's* end and aim!
Good, Pleasure, Ease, Content, whate'er thy name;
That something still which prompts the eternal sigh,
For which we bear to live, or dare to die;
Which still so near us, yet beyond us lies;
O'erlook'd, seen double by the fool and wise.
Pope. Essay on Man.

Men would *be* angels, angels would *be* gods;
Aspiring to *be* gods if angels fell,
Aspiring to *be* angels, men rebel,
And who but wishes to invert the laws
Of order, sins against th' Eternal cause. *Id.*

For who, to dumb forgetfulness a prey,
This pleasing, anxious, *being* e'er resign'd,
Left the warm precincts of the cheerful day,
Nor cast one longing, ling'ring look behind.
Gray's Elegy in a Country Churchyard.

From courts and thrones return, apostate praise!
Thou prostitute! to thy first love return.
Thy first, thy greatest, once unrivall'd theme.
Back to thy fountain; to that parent power,
Who gives the tongue to sound, the thought to soar,
The soul to *be*. *Young.*

This is the bud of *being*, the dim dawn;
Life's theatre as yet is shut, and death,
Strong death, alone can heave the massy bar,
This gross impediment of clay remove,
And make us embryos of existence free. *Id.*

Count o'er the joys thine hours have seen,
Count o'er thy days from anguish free
And know whatever thou hast been
'Tis something better not to *be*. *Byron.*

BEACH, *n.* }
BE'ACHED, *adj.* } It is not to be found in any of our early lexicons.
BEACHY. } Dr. Johnson offers no etymology. Serenius gives the Goth. *backar*, signifying the same as beach. The Ency. Metro. ventures to conjecture that it is derived from *beag* (from *bigan* vel *bugan*, to bend, to wreathe) whatever girds or surrounds. The shore, particularly that part that is dashed by the waves. The loose stones that lie between the waters' edge and the main land.

The fishermen, that walk upon the *beach*,
Appear like mice. *Shakspeare. King Lear.*

Timon hath made his everlasting mansion
Upon the *beached* verge of the salt flood;
Which, once a day, with his embossed froth
The turbulent surge shall cover. *Shakspeare.*

The *beachy* girdle of the ocean
Too wide for Neptune's hips. *Id.*

What! are men mad? Hath nature given them eyes
To see this vaulted arch, and the rich crop
Of sea and land, which can distinguish 'twixt
The fiery orbs above, and the twinn'd stones
Upon the number'd *beach*? And can we not
Partition make with spectacles so precious
'Twixt fair and foul? *Id.*

Deep to the rocks of hell the gather'd *beach*
They fasten'd, and the mole immense wrought on
Over the foaming deep. *Milton.*

They find the washed amber further out upon the *beaches* and shores, where it has been longer exposed. *Woodward.*

Nor far remote
A broken torch—an oarless boat—
And tangled on the weeds that heap
The *beach* where shelving to the deep—
There lies a white capote!
'Tis rent in twain—one dark-red stain
The wave yet ripples o'er in vain.
Byron. Bride of Abydos

BEACH HILL, an ancient artificial mount, north of Coupar in Angus, on which justice is said to have been formerly administered in the open air. From the top of it there is a delightful prospect of the meandering of the Isla, through a fertile and extensive champaign country, variegated with fruitful fields and thriving villages. Some Roman urns have have been found on this mount.

BEACHLEY, or OLD PASSAGE, a point of land at the confluence of the Wye and Severn, Gloucestershire; which from its insulated position has always been considered an important military post. Earth works of ancient British origin are still remaining; and it is the terminating point of Offa's dyke. Here the Royalists, whom prince Rupert had sent forth to fortify the point in the wars of the commonwealth, were dislodged with great loss, and afterwards defeated in a pitched battle. The royalist commander, Sir John Wyntour, is said to have escaped by a hazardous leap from a cliff, still called Wyntour's Leap.

BEACHY-HEAD, on the coast of Sussex. It is known to sailors by the name of the Seven Cliffs. The summit of the highest cliff, which is also the highest in the south of England, is 575 feet from the base. From this promontory to Arundel the hills are called South Downs, and are celebrated as sheep walks. On the west side of Beachy-Head is an artificial cavern, named Parson Darby's Hole; consisting of two apartments, just above high water mark, dug out of the solid chalk. Tradition asserts it to have been the residence of a recluse, who was minister of East Dean.

BE'ACON, *v.* & *n.* }
BE'ACONED, } Sax. beacon, from
BE'ACONAGE. } becn, a signal, and beenan, whence beckon, to make a signal. Skinner thinks it is derived from the Ang.-Sax be, and cennan, to ken, to see. Any thing so placed, says the Ency. Metro. that it may be kenn'd, seen, or distinguished, intended as a sign, notice, or warning,

con. Its specific description connects with it instantaneous firing, in the moment of alarm from an enemy; or of a constant light in the darkness, to direct navigators in their course, and warn them from rocks, shallows, and sandbanks.

His blazing eyes, like two bright shining shields,
Did burn with wrath, and sparkled living fire;
As two broad *beacons* set in open fields
Send forth their flames. *Spenser. Faerie Queene.*

Modest doubt is call'd
The *beacon* of the wise. *Shakspeare.*

The king seemed to account of Perkin as a May-game; yet had given order for the watching of *beacons* upon the coasts, and erecting more where they stood too thin. *Bacon.*

No flaming *beacons* cast their blaze afar,
The dreadful signal of invasive war. *Gay.*

On the top of the steeple there remains an iron pitchpot, designed as a *beacon*, to be fired occasionally, to alarm the country in case of invasion. It takes its name from the Saxon becnian, to call by signs.
Pennant's Tour from Chester. Hoadley Church.

Wherefore, among other reasons, a suit for *beaconage* of a *beacon* standing on a rock in the sea, may be brought into the court of Admiralty, the admiral having an original jurisdiction over *beacons*.
Blackstone. Comment. III.

The haven hums with many a cheering sound,
The *beacons* blaze their wonted stations round.
Byron.

The bat builds in his haram bower;
And in the fortress of his power
The owl usurps the *beacon* tower.
Id. Giaour.

Beacons anciently were intended as signals for the better securing the kingdom from foreign invasions.—See Signal. On certain eminent places of the country were erected long poles, whereon were fastened pitch barrels to be fired by night, and to smoke by day, to give notice in a few hours to the whole kingdom of an approaching invasion. These served to communicate intelligence as rapidly as the modern invention of the telegraph. We find beacons frequently used among the primitive Britons and Western Highlanders. The besieged capital of one of our northern isles in the third century lighted up a fire upon a tower, and Fingal knew 'the green flame edged with smoke' to be a token of attack and distress, (Ossian, vol. i. p. 195). There are to this day several cairns or heaps of stones upon the heights along the coasts of the Harries, on which the inhabitants used to burn heath as a signal of an approaching enemy.

Beacons on the sea coasts, for guiding and preserving vessels at sea, by night as well as by day, are erected by the king's authority, being a branch of the royal prerogative. The king has the exclusive power, by commission under his great seal, to cause beacons, light-houses and sea marks to be erected in fit and convenient places, as well upon the lands of the subject, as upon the demesnes of the crown: which power is usually vested by letters patent in the office of lord high admiral. And by statute 8 Eliz. c. 13. the corporation of the Trinity-house are empowered to set up any beacons or sea-marks wherever they shall think them necessary; and if the owner of the land or any other person shall destroy them, or shall take down any steeple, tree, or other known sea-mark, he shall forfeit £100, or, in case of inability to pay it, shall be ipso facto outlawed.

Beaconage, a tax paid towards the maintenance of a beacon.

Beacon-Hill, a high rock in the parish of Muthil, in Perthshire, from whence a fire in the night might be seen at the distance of fifty miles east. The top of it is flat, and covered with ashes to a considerable depth. It is within two miles of Strageath, and may be seen from Camp's Castle, and from almost every part of a Roman road, which runs from Strageath for several miles eastward, in a straight line, to the parks of Gask, where there are still the remains of a Roman station. From all which it is evident that it has been a place of signals, and hence derived its name. It is also called Eagle's Craig.

Beacon-Hill, 1. a hill in Essex, on the south side of the mouth of the port of Harwich, with a light-house on it: 2. another in Wiltshire, between Marlborough and Sandy-Lane.

BEACONSFIELD, a town of Buckinghamshire, seated on a hill in the road between London and Oxford; eight miles from Marlow and Uxbridge, and twenty-five W.N.W. of London. It has a market on Thursday, and two fairs, February 13th, and Holy Thursday. In its vicinity was the residence of the poet Waller, at Hall Barn, and of Edmund Burke, at Butler's Court. The duke of Portland's seat, Bulstrode, is also within a short distance. Population about 1736.

BEACUL, a town and fortress of Hindostan, in South Canara, on a point of land projecting into the sea. It consists of about 100 houses. Long. 75° 9′ E., lat. 12° 22′ N.

BEAD, Bead'roll, Beads'man, Beads'woman, Beads'bidding, } From *bede*, Ang. Sax. a prayer; the past participle of *biddan*, *orare*, to bid; to invite; to solicit; to request; to pray: *bead* is likewise a small globe, or ball of glass, or pearl, or other substance; a number of these, strung upon a thread, are used by Papists to count their prapers. *Beadroll* is a catalogue of prayers, or, perhaps, originally a list of those to be prayed for in church, afterwards any list. *Beadsman*, a prayer man, commonly one who prays for another. From this use *beads* obtained their name, which are now any small globular body, and most frequently used to denominate the little balls which are threaded and worn about the neck for ornament.

A paire of *bedes* eke she bere
Upon a lace, all of white threde,
On which that she her *bedes bede*:
But she ne bought hem nevre a dele,
For they were given hire, I wot wele
God wote of a full holie frere,
That said he was her father dere,
To whom she hod oftener went
Than any frere of his covent. *Chaucer.*

Where that old woman day and night did pray
Upon her *beades* devoutly penitent;
Nine hundred Pater-nosters every day,
And thrice nine hundred Aves she was wont to say,

And to augment her painful penance more
Thrice every day in ashes she did sit,
And next her wrinkled skin rough sackcloth wore,
And thrice three times did fast from any bit.
Spenser.

An holy hospital,
In which seven *beadsmen*, that had vowed all
Their life to service of high heaven's king.
Facrie Queene.

It was a friar of orders gray
Walk'd forth to tell his *beads*,
And he met with a lady fair,
Clad in a pilgrim's weeds. *Old Ballad.*

With scarfs, and fans, and double charge of brav'ry,
With amber bracelets, *beads*, and all such knavery.
Shakspeare.

Thy spirit within thee hath been so at war,
That *beads* of sweat have stood upon thy brow. *Id.*

In thy danger
Commend thy grievance to my holy prayer;
For I will be thy *beadsman*, Valentine. *Id.*

The king, for the better credit of his espials abroad, did use to have them cursed by name amongst the *beadroll* of the king's enemies. *Bacon's Henry VII.*

'Twas such a bountie
And honour done to your poore *bedes woman*,
I know not how to owe it, but to thanke you.
Ben Jonson. The Sad Shepherd.

Several yellow lumps of amber, almost like *beads*, with one side flat, had fastened themselves to the bottom. *Boyle.*

Bring the holy water hither,
Let us wash and pray together:
When our *beads* are thus united,
Then the foe will fly affrighted. *Herrick.*

For who would rob a hermit of his weeds,
His few books, or his *beads*, or maple dish,
Or do his gray hairs any violence. *Milton. Comus.*

Then might ye see
Cowls, hoods, and habits, with their wearers tost
And flutter'd into rags; then reliques, *beads*,
Indulgencies, dispenses, pardons, bulls,
The sport of winds. *Milton's Paradise Lost.*
While the disjointed abbess threads
The gingling chain-shot of her *beads*. *Marvell.*
Tell your *beads*, says the priest, and be fairly truss'd up,
For you surely to-night shall in paradise sup.
Prior. Thief and Cordelier.

He taketh candle, *beades*, and holy watere,
And legends eke of saintes, and bookes of prayere;
He entereth the room, and looketh round about,
And haspen the door to haspen the goblin out.
Gay. Imitation of Chaucer.

Thy voice I seem in every hymn to hear,
With ev'ry *bead* I drop too soft a tear. *Pope.*
Much is the Virgin teas'd, to shrive them free
From crimes as numerous as her *beadsmen* be.
Byron.

BEAD, in architecture, a round moulding, commonly made upon the edge of a piece of stuff, in the Corinthian and Roman orders, cut or carved in short embossments, like beads, in necklaces. A plain bead is sometimes set on the edge of each fascia of an architrave, and sometimes also an astragal is thus cut. It is not uncommon to place a bead on the lining board of a door-case, or on the upper edges of skirting boards.

BEAD, in assaying, the small lump or mass of pure metal separated from the scoriæ, and seen distinct and pure in the middle of the cupel while in the fire. Thus, in separating silver from its ore by means of lead, the silver remains in the form of a bead, when the lead, that had before assisted in the operation, is reduced to scoria. In this process, the bead of silver must be taken out of the cupel as soon as it is observed to be pure, lest, gowing cold, it should be conglutinated to the cupel or litharge. This bead, when the assay is properly made, is always porous on the under side. See ASSAYING.

BEADS, in commerce, those glass globules vended to the savages on the coast of Africa; thus denominated, because they are strung together for the convenience of traffic.

BEADS, in devotional exercises, are much used by Roman Catholics, as in rehearsing and numbering their Ave-Marias and Pater-nosters; and a similar practice prevails among the dervises and other religious throughout the East, as well Mahommedan as Heathen. The ancient Druids appear also to have had their beads, many of which are still found; at least, if the conjectures of an ingenious author may be admitted, who takes those antique glass globules, having a snake painted round them, and called adder-beads, or snake-buttons, to have been the beads of our ancient Druids.

BEADS, BIDDING OF THE, a charge given by the Romish priests to their parishioners, at certain times, to say so many Pater-nosters upon their beads for a soul departed.

BEADS, used in necklaces, are made of various materials, such as steel, garnet, coral, diamond, amber, crystal, pastes, &c. The common black glass of which beads are made for necklaces, &c. is colored with manganese only: one part of manganese is sufficient to give a black color to near twenty of glass.

BEA'DLE, } Sax. by-bell, a messenger;
BEADLE'SHIP. } Fr. *bedeau*, Span. *bedel*, Dut. *bedelle*. Junius derives it from *biddan*, *beadan*, to bid, to tell, to order; because he proclaims and executes the will of his superiors, *Beadleship* is the office of a *beadle*, it occurs in Wood's Athenæ Oxon. vol. ii. fol. 388.

A dog's obey'd in office.
Thou rascal *beadle*, hold thy bloody hand:
Why dost thou lash that whore? *Shakspeare.*

And I, forsooth, in love!
I that have been love's whip:
A very *beadle* to a humourous sigh,
A critick; nay, a night-watch constable. *Id.*

They ought to be taken care of in this condition, either by the *beadle* or the magistrate. *Spectator.*

Their common loves a lewd abandon'd pack,
The *beadle's* lash still flagrant on their back.
Prior.

BEADLE is also used for an officer in universities, whose place is to walk before the masters at all public processions, &c. with a mace. Spelman, Vossius, and Sumner, derive beadle from the Saxon; in which sense bishops, in some ancient Saxon manuscripts, are called beadles of God, Dei bedelli. The translator of the Saxon New Testament renders exactor by bidele; and the word is used in the same sense in the laws of Scotland.

Beadle is chiefly applied in Scotland to those church officers who keep the keys of the churches and seats, and occasionally attend the ministers and kirk sessions, in the exercise of their parochial duties. The office is somewhat similar, though not in every respect, to that of Church Warden in England.

Bead-Makers, called by the French paternostriers, are those employed in the making, stringing, and selling of beads, for devotional purposes. At Paris, before the revolution, there were three companies of bead-makers; one who made them of glass or crystal; another of wood and horn; and the third of amber, coral, jet, &c.

Bead-Proof, a term used by distillers to express that sort of proof of the standard strength of spirituous liquors, which consists in their having, when shaken in a phial, or poured from on high into a glass, a crown of bubbles, which stand on the surface some time after. This is esteemed a proof that the spirit consists of equal parts of rectified spirits and phlegm. It however is a fallacious rule as to the degree of strength in the goods; because any thing that will increase the tenacity of the spirit, will give it this proof, though it be under the due strength.

Bead-Proof. A method of ascertaining the strength of spirituous liquors, invented by Mr. Brown of Glasgow. It consists of a number of small glass globules, or beads, marked so as to correspond with the degrees of a hydrometer. These beads have a small glass cylinder appended to them, which, being ground with emery, they are brought to the degree of lightness required. They are put up in a box, and being thrown into any spirituous liquor, at a medium temperature, say sixty degrees of Fahrenheit, the bead which remains suspended in any part of it denotes the specific gravity or the proportion of spirit it contains. Thus No. 1. remains suspended in any part of distilled water, of the required temperature, which is the standard from which the proportion of spirit is computed. No. 32. remains suspended in any part of pure alkohol; and all the intermediate beads indicate various proportions of water and spirit in the mixture. When these beads are made with accuracy, they seem to afford a more easy method of ascertaining the strength of spirits than any yet invented. See Hydrometer.

Bea'gle. Fr. *bigles*, perhaps from the Ital. *piccolo*, q. d. *cani piccoli*, smaller dogs. A small hound with which hares are hunted.

She's a *beagle* true-bred, and one that adores me.
Shakspeare.

The rest were various huntings.
The graceful goddess was array'd in green;
About her feet were little *beagles* seen,
That watch'd with upward eyes the motions of their queen. *Dryden's Fables.*

To plains with well-bred *beagles* we repair,
And trace the mazes of the circling hare. *Pope.*

Already see the deep-mouth'd *beagles* catch
The tainted mazes; and, on eager sport
Intent, with emulous impatience try
Each doubtful trace. *Armstrong.*

Beagle, in zoology, a valuable dog, kept entirely for hunting hares; they are of small size, inferior to the hare in swiftness, but possess a very delicate scent; and when they have found her, seldom fail of running a hare down.

Beagles are of various kinds, as the southern beagle, something less and shorter, but thicker, than the deep mouthed hound; the fleet northern or cat beagle, smaller, and of a finer shape than the southern, and a harder runner. From these two, by crossing, is bred a third sort, held preferable to either. To these may be added a still smaller sort of beagles, scarce bigger than lap-dogs, which make pretty diversion in hunting the coney, or even the small hare in dry weather; but are otherwise unserviceable by reason of their size.

Beak', Beak'ed, Beak'er, Beak-head. Ang.-Sax. *pycan*, Ger. *picken*, to pick or peck. The *beak*, says the Encyclopedia Metropolitana, is that which picketh or pecketh. It is applied generally to whatever is pointed or sharp. Thus the bill of a bird is called its beak; the cup called a beaker, derives its name from the shape of its spout. But the Dutch *beker* Vossius derives from the Lat. *bacar*, and thus *bacar* or *baccar*, says the just mentioned authority, is perhaps from *Bacchus*. It means a vessel or cup for wine. This is a little forced. The term *beak* is now used to signify the forepart of a ship. In the ancient galleys it was a piece of brass like a beak, fixed at their end, with which they pierced their enemies. It is also applied to a shoe peculiarly constructed, and to a prominence of land.

Father, I sweare by Ibis' golden *beake*,
More fair and radiant is my bonny Kate,
Then silver Xanthus, when he doth embrace
The ruddy Simois at Ida's feet. *Whetstone.*

A little wren in *beake* with laurell greene that flew,
Foreshew'd my doleful death, as after all men knew.
Mirror for Magistrates.

His royal bird
Prunes the immortal wing, and cloys his *beak*,
As when his god is pleas'd.
Shakspeare. Cymbeline.

I boarded the king's ship, now on the *beak*,
Now in the waist, the deck, in every cabin. *Id.*

The floating vessel swam
Uplifted, and secure with *beaked* prow,
Rode tilting o'er the waves.
Milton. Paradise Lost.

He asked the waves, and ask'd the felon winds,
What hard mishap hath doom'd this gentle swain?
And question'd every gust of rugged wings
That blows from off each *beaked* promontory:
They knew not of his story;
And sage Hippotades their answer brings,
That not a blast was from his dungeon stray'd:
The air was calm, and on the level brine
Sleek Panope with all her sisters play'd.
Id. Lycidas

Him thought, he by the brook of Cherith stood;
And saw the ravens with their horny *beakes*,
Food to Elijah bringing ev'n and morn.
Id. Paradise Regained.

With boiling pitch, another near at hand,
From friendly Sweden brought, the seams instops;
Which well laid o'er, the salt sea waves withstand,
And shake them from the rising *beak* in drops.
Dryden.

The magpie, lighting on the stock,
Stood chatt'ring with incessant din,
And with her *beak* gave many a knock.
Swift.

And into pikes and musqueteers
Stampt *beakers*, cups, and porringers.
Hudibras.

With dulcet bev'rage this the *beaker* crown'd,
Fair in the midst, with gilded cups around.
Pope. Odyssey.

The hooked *beak* of the hawk-tribe, separates the flesh from the bones of the animal which it feeds upon, almost with the cleanness and precision of a dissector's knife. *Paley's Natural Theology.*

It is as if the desart bird,
Whose *beak* unlocks her bosom's stream,
To still her famish'd nestlings' scream,
Nor mourns a life to them transferr'd;
Should rend her rash devoted breast,
And find them flown her empty nest.
Byron. Giaour.

Beak, in ancient military affairs, was used for one of the battalia, or forms of ranging an army for battle, particularly by the Macedonians.

Beak, in architecture, a little fillet left on the edge of a larmier, which forms a canal, and makes a kind of pendent chin, answering to what Vitruvius calls the mentum.

Beak, in farriery, denotes a little horse-shoe, turned up, and fastened in upon the fore part of the hoof. It is used to keep the shoes fast, and to prevent them from being struck off by the horse, when by reason of any itch, or being much disturbed by the flies in hot weather, he stamps his feet violently on the ground.

Beak, in ornithology: from the form and structure of the beaks of birds, Linnæus divides this whole family, or general class of animals, into six orders. See Ornithology.

Beak, or Beak-head, of a ship, that part without the ship, before the forecastle, which is fastened to the stem, and is supported by the main knee. It is usually carved and painted, which adds beauty to utility. The beak, called by the Greeks εμβολον, by the Latins rostrum, was an important part in the ancient ships of war, which were hence denominated naves rostratæ. The beak was made of wood, but fortified with brass and fastened to the prow, serving to annoy the enemy's vessels. Its invention is attributed to Pisæus, an Italian. The first beaks were made long and high; but afterwards a Corinthian, named Aristo, contrived to make them short and strong, and placed so low as to pierce the hostile vessels under water. By the help of these, great havoc was made by the Syracusans in the Athenian fleet.

Beaked, in heraldry, a term used to express the beak or bill of a bird. When the beak and legs of a fowl are of a different tincture from the body, we say beaked and membered of such a tincture.

BEALE, a river of England, which runs through part of the counties of Sussex and Kent, and falls into the Medway.

Beale (Mary), particularly distinguished by her skill in painting, was the daughter of Mr. Craddock, minister of Walton-upon-Thames, and learned the rudiments of her art from Sir Peter Lely. She painted in oil, water-colors, and crayons, and had much business; her portraits were in the Italian style, which she acquired by copying pictures from Sir Peter Lely's and the royal collections. Her master, says Mr. Walpole, was supposed to have had a tender attachment to her; but as he was reserved in communicating to her all the resources of his pencil, it probably was a gallant rather than a successful one. Dr. Woodfall wrote several pieces to her honor, under the name of Belisia. Mrs. Beale died in Pall-mall in 1697, aged 65. Her paintings have much nature, but the coloring is stiff and heavy.

BEALSBURG, a town of the United States of America, in Kentucky, seated on the east bank of the Rolling-fork. It is fifteen miles W. S. W. of Bairdstown, fifty south-west of Frankfort, and 890 from Philadelphia.

BEALT, Bealth, or Builth, a town of Brecknockshire in South Wales, pleasantly seated on the river Wye. It is ninety-two miles from Chester, sixteen north of Brecknock, and 171 from London.

BEAM, *n.* } *Bagms*, Goth. *beam*, Ang-
Beamlike, *adj.* } Sax. a tree; the etymology
Bea'my. } uncertain; the applications are various. See our scientific articles under this term.

Als straught as ony lyne
Within a *beme* that fro the contree dyvine,
Sche percyng throw the firmament extendit,
To ground agayne my spirit is descendit.
James I. King's Quair.

With that at him his *beam-like* speare he aymed,
And thereto all his powre and might applyde. *Spenser.*

The staff of his spear was like a weaver's *beam.*
1 Chron.

Poise the cause in justice' equal scales,
Whose *beam* stands sure, whose rightful cause prevails. *Shakspeare.*

The building of living creatures is like the building of a timber house; the walls and other parts have columns and *beams*, but the roof is tile, or lead, or stone. *Bacon.*

So much they could with their chariots by use and exercise, as riding on the speed down a steep hill, to stop suddenly, and with short rein turn swiftly, now running on the *beam*, now on the yoke, then in the seat. *Milton. Hist. Eng.*

He heav'd, with more than human force, to move
A weighty stone, the labour of a team,
And rais'd from thence he reach'd the neighb'ring *beam.* *Dryden.*

Juturna heard, and, seiz'd with mortal fear,
Forc'd from the *beam* her brother's charioteer. *Id.*

His double-biting axe, and *beamy* spear;
Each asking a gigantic force to rear. *Id. Fables.*

Rouse from their desert dens the bristled race
Of boars, and *beamy* stags in toils engage. *Id. Virgil.*

And taught the woods to echo to the stream
His dreadful challenge, and his clashing *beam.*
Dryden.

Upon a *beam* aloft he sits,
And nods and seems to think by fits. *Gay. Fables.*

The pilot's fair machinery strews the deck;
And cards and needles swim in floating wreck;
The balanc'd mizen, rending to the head,
In streaming ruins from the margin fled.
The sides convulsive shook on groaning *beams*,
And rent with labour, yawn'd the pithy seams.
Falconer. Shipwreck.

BEAM, *v. n.* } Ang.-Sax. *beaman*, to shine,
BEA'MLESS, } to emit rays, as from the sun;
BEA'MY. } any thing radiant.

Is aught on earth so pretious or deare
As praise and honour? or is ought so bright
And beautifule as glories *beames* appeare,
Whose goodly light than Phœbus lampe doth shine more clear? *Spenser.*

How shall a worm, on dust that crawls and feeds,
Climb to th' empyreal court, where these states reign,
And there take view of what heav'n's self exceeds?
The sunless stars, these lights the sun distain:
Their *beams* divine, and beauties do excel
What here on earth, in air, or neav'n do dwell:
Such never eye yet saw, such never tongue can tell.
Fletcher's Purple Island.

Pile ten hills on the Tarpeian rock,
That the precipitation might down stretch
Below the *beam* of sight.
Shakspeare. Coriolanus.

Sunk though he be beneath the wat'ry floor;
So sinks the day-star in the ocean bed,
And yet anon repairs his drooping head,
And tricks his *beams*, and with new spangled ore,
Flames in the forehead of the morning sky;
So Lycidas sunk low, but mounted high.
Milton. Lycidas.

No sun to cheer us but a bloody globe,
That rolls above, a bald and *beamless* fire.
Dryden and Lee.

What modes of sight betwixt each wide extreme,
The mole's dim curtain, and the lynx's *beam.* *Pope.*

Truth bids me look on men, as autumn's leaves,
And all they bleed for, as the summer's dust,
Driven by the whirlwind: lighted by her *beams*,
I widen my horizon, gain new powers,
See things invisible, feel things remote,
Am present with futurities; think nought
To man so foreign as the joys possest,
Nought so much his as those beyond the grave.
Young.

Attempered suns arise,
Sweet-*beam'd* and shedding oft thro' lucid clouds
A pleasing calm, while broad and brown below,
Extensive harvests hang the heavy head.
Thomson's Seasons.

The ghastly form,
The lip pale quiv'ring and the *beamless* eye.
Id. Summer.

But lo! from high Hymettus to the plain,
The queen of night asserts her silent reign.
No murky vapour, herald of the storm,
Hides her fair face, nor gilds her glowing form;
With cornice glimmering as the moon-*beams* play,
There the white column greets her grateful ray,
And bright around with quivering *beams* beset
Her emblem sparkles o'er the minaret.
Byron. Corsair.

O Peace, thy injured robes upbind!
O rise, and leave not one behind
Of all thy *beamy* train.
Collins's Ode to Peace.

One cultivated spot there was, that spread
Its flowery bosom to the noon-day *beam*,
Where many a rose-bud rears its blushing head,
And herbs for food with future plenty team.
Beattie's Minstrel.

BEAM, in architecture. Some of the best authors have considered the force or strength of beams, and brought their resistance to a precise calculation: particularly M. Varignon and M. Parent. The system of the latter is as follows When, in a beam breaking parallel to its base which is supposed to be a parallelogram, two planes of fibres, which were before contiguous, are separated, there is nothing to be considered in those fibres, but their number, bigness, tension before they broke, and the lever by which they act: all these together make the strength or resistance of the beam to be broke. Suppose then another beam of the same wood, where the base is likewise a parallelogram, and of any bigness, with regard to the other, the height or thickness of each of these when laid horizontal, being divided into an indefinite number of equal parts, and their breadth into the same number, in each of their bases will be found an equal number of little quadrangular cells, proportionate to the base whereof they are parts. These then will represent little bases, or, which is the same thing, the thicknesses of the fibres to be separated by the fracture of each beam: and, since the number of cells is equal in each, the ratio of the bases of both beams will be that of the resistance of their fibres, both with regard to number and thickness. Now the two beams being supposed to be of the same wood, the fibres most remote from the points of support, which are those which break first, must be equally stretched, when they break. Thus the fibres, e. g. of the tenth division, are equally stretched in each case, when the first breaks; and in whatever proportion the tension be supposed, it will still be the same in both cases; so that the doctrine is entirely free and unembarrassed with any physical system.—Lastly, the levers whereby the fibres of the two beams act, are represented by the height or depth of their bases; and of consequence the whole resistance of each beam is the product of its base by its height; or, it is the square of the height multiplied by its breadth: which holds not only in case of parallelogrammatic, but also of elliptic bases. Hence, if the base of two beams be equal, though both their heights and breadths be unequal, their resistance will be as their heights alone; and, by consequence, the same beam laid on the smallest side of its base will resist more than when laid flat, in proportion as the first situation gives it a greater height than the second: and thus an elliptic base will resist more when laid on its greatest axis, than when on its smallest. Since in beams equally long the bases determine the proportion of their weights or solidities, and since their bases being equal, their heights may be different, two beams of the same weight may have resistances differing to infinity: thus, if in one the height of the base be supposed infinitely great, and the breadth infinitely small, while in the other the dimensions of the base are infinite; the resistance of the first will be infinitely greater than that of the second, though their solidity and weight be the same. If, therefore, all that was required in architecture were to have beams capable of supporting vast loads, and at the same time to be of the least weights possible, it is plain they must be cut thin as laths and laid edgeways. If the bases of two beams be supposed unequal, but the sum of the sides of the two bases equal, e. g. if they be either 12 and 12, or 11 and 13, or 10 and 14, &c. so that they always make 24; and further, if they

be supposed to be laid edgeways; pursuing the series, it will appear, that in the beam of 12 and 12, the resistance will be 1728, and the solidity or weight 144: and that in the last, or 1 and 23, the resistance will be 529, and the weight 23: the first, therefore, which is square, will have less than half the strength of the last, with regard to its weight. Hence M. Parent remarks, that the common practice of cutting the beams out of trees as square as possible is reprehensible: he hence takes occasion to determine geometrically, what dimensions the base of a beam to be cut out of any tree proposed shall have, in order to its being of the greatest possible strength; or, which is the same thing, a circular base being given, he determines the rectangle of the greatest resistance that can be inscribed; and finds that the sides must be nearly as 7 to 5, which agrees with observation. Hitherto the length of the beams has been supposed equal; if it be unequal, the bases will resist so much the less, as the beams are longer. To this it may be added, that a beam sustained at each end, breaking by a weight suspended from its middle does not only break at the middle, but also at each extreme; or, if it does not actually break there, at least immediately before the moment of the fracture, which is that of the equilibrium between the resistance and the weight, its fibres are as much stretched at the extremes as in the middle. So that of the weight sustained by the middle there is but one-third part which acts at the middle to make the fracture; the other two only acting to induce a fracture in the two extremes. A beam may either be supposed only loaden with its own weight, or with other foreign weights applied at any distance, or else only with those foreign weights. Since, according to M. Parent, the weight of a beam is not ordinarily above one-seventieth part of the load given it to sustain, it is evident that in considering several weights, they must all be reduced by the common rules to one common centre of gravity. M. Parent has calculated tables of the weights that will be sustained by the middle in beams of various bases and lengths, fitted at each end into walls, on a supposition that a piece of oak of an inch square and a foot long, retained horizontally by the two extremes, will sustain 315lb. in its middle before it breaks, which it is found by experience it will.

Beam, in heraldry, is used to express the main horn of a hart or buck.

Beam, in hunting, the main stem of a deer's head, or that part which bears the antlers, royals, and tops; the little streaks whereof are called circles.

Beam, or Roller, in weaving, is a long and thick wooden cylinder placed lengthways on the back part of the loom of those who use the shuttle. The threads of the warp of linen or woollen cloth, serges, or other woollen stuffs, are rolled upon the beam, and unrolled as the work goes on. That cylinder on which the stuff is rolled, as it is weaved, is also called the beam or roller, and is placed on the fore part of the loom.

Beam of a Balance, is that piece of iron or wood, somewhat bigger towards the middle than at the ends, where there are holes, through which run the ropes or strings which hold the scales; the beam is divided into two equal parts by a needle placed over it perpendicularly, and the centre of motion must be placed a little above the centre of gravity, that the beam may rest exactly in an horizontal position. See Balance.

Beam of an Anchor. The straight part or shank of an anchor, to which the hooks are fastened.

Beam of a Plough, a name given by our farmers to the great timber of the plough, into which all the other parts of the plough-tail are fixed. This is usually made of ash, and is straight, and eight feet long in the common plough: but in the four-coultered plough it is ten feet long, and its upper part is arched. The head of this beam lies on the pillow of the plough, and is raised higher, or sunk lower, as that pillow is elevated or depressed by being slipped along the crow-staves. Near the middle it has an iron collar, which receives the tow chain from the box, and the bridle chain from the stake or gallows of the plough is fixed in it a little below the collar. Some inches below this there is a hole, which lets through the coulter; and below that there are two other small ones, through which the heads of the retches pass. These are the irons which support the sheet, and with it the share. Farther backward still is a larger perforation, through which the body of the sheet passes; and behind that, very near the extremity, is another hole through which the piece called the hinder-sheet passes. See Husbandry.

Beams of a Ship are the large main cross timbers, stretching from side to side, which hold the sides of a ship from falling together, and which also support the decks and orlops of the ship. The main beam is that next the main mast; and from it they are reckoned by first, second, and third beam. The great beam is also called the midship beam. There are usually twenty-four beams on the lower deck of a ship of seventy-four guns, and to the other decks additional ones in proportion as the ship lengthens above. Hence the following phrases in sea language:

Beam, Before the, signifies an arch of the horizon comprehended between the line of the beam, and that point of the compass which she stems.

Beam, on the, in sea language, denotes any distance from the ship on a line with the beams, or at right angles with the keel. Any object that lies east or west when the ship steers northward, is said to be on the starboard or larboard beam.

Beam, on the Weather, signifies on the weather side of the ship.

Beam-antler, the branch of a deer's horn next the head.

Beam-bird. See Motacilla.

Beam, Camber. See Camber Beam.

Beam Feathers, in falconry, the longest feathers of a hawk's wing.

Beam-filling, in architecture, the filling up the vacant space between the aising plate and roof with stones or bricks, laid between the rafters on the aising plate, and plastered on with loam; this is frequent where the garrets are not pargeted or plastered.

BEAMINSTER, a market town of Dorsetshire, in England, seated on the river Birton, six

miles from Bridport, and 141 west of London. A considerable manufactory of sail cloth, and also of iron and copper goods, is carried on here. It was nearly destroyed by fire in 1645 and 1686, and suffered severely from the same cause in 1781. Population 2290.

BEAN, BEAN'FED, BEAN'SHAPED. } Saxon bean, bien, a well known vegetable. Etymology unknown. Junius derives it from the Greek πνανον vel πνανος; but assigns in our opinion a very unsatisfactory reason—so called because they produce blood. And what food does not?

But God wot that May thought in hire heste,
When she him saw up sitting in his shirt,
In his night cap, and with his necke lene:
She praiseth not his playing worth a *bene*.
Chaucer.

And worse than that bare meat there did remain
To comfort her when she her house had dight,
Sometime a barley-corn, sometime a *bean*,
For which she laboured hard both day and night.
Wyatt.

I jest to Oberon and make him smile,
When I a fat and *beane*-fed horse beguile,
Neighing in likenesse of a silly foale.
Shakspeare.

Long let us walk,
Where the breeze blows from yon extended field
Of blossom'd *beans*. *Thomson. Spring.*

On turnips feast whene'er you please,
And riot in my *beans* and pease. *Gay's Fables.*

Why does the pea put forth tendrils, the *bean* not; ut because the stalk of the pea cannot support itself, he stalk of the *bean* can! *Paley.*

BEAN. The old method of choosing king and ueen on Twelfth-day, was by having a bean nd a pea mixed up in the composition of a ake. They who found these in their portion of ake, were constituted king and queen for the vening.

Now, now the mirth comes,
With the cake full of plums,
Where *beane's* the king of the sport here,
Besides we must know,
The pea also,
Must revell as queene in the court here.
Herrick's Hesper.

Cut the cake: who hath the *beane* shall be kinge; nd where the pease is she shall be queene.
Nichol's Progresses.

You may imagine it to be twelfth day at night, nd the *bean* found in the corner of your cake, but it not worth a vetch, I assure you.
Middl. New Wond. Anc. Dr. 272.

BEANS. 'Three blue *beans* in a blue bladder.' hat is the origin of this whimsical combination words, it may not now be easy to discover, t at least it is of long standing.

F. Hark, does't rattle?
S. Yes, like three blue *beans* in a blue bladder, ttle bladder, rattle.
Old Fortunatus. Anc. Dr. III. p. 128.

Prior has it in his Alma:—

They say
That putting all his words together
'Tis three blue *beans* in one blue bladder.
Cant. I. v. 25.

BEAN, in botany. See VICIA.

BEANS, in antiquity, were applied to various es. The ancients made use of beans in gathering the votes of the people, and for the election of magistrates. A white bean signified absolution, and a black one condemnation. Beans had a mysterious use in the lemuralia and parentalia, where the master of the family, after washing, was to throw a sort of black beans over his head, still repeating the words, 'I redeem myself and family by these beans.' Ovid gives a lively description of the whole ceremony in verse. Abstinence from beans was enjoined by Pythagoras, one of whose symbols is, κναμον απεχεσθαι, abstine a fabis. The Egyptian priests held it a crime to look at beans, judging the very sight unclean! The flamen dialis was not permitted even to mention the name. The precept of Pythagoras has been variously interpreted: some understand it of forbearing to meddle in trials and verdicts, which were then by throwing beans into an urn; others build on the equivoque of the word κναμος, and explain it by abstinence from sexual pleasures. Clemens Alexandrinus grounds the abstinence from beans on this, that they render women barren: which is repeated by Theophrastus, who extends the effect even to plants. Cicero suggests that beans are great enemies to tranquillity of mind. For a reason of this kind it is, that Amphiarus is said to have abstained from beans, even before Pythagoras, that he might enjoy a clearer divination by dreams.

BEANS, in dietetics, are said to be nutritive, but flatulent. The horse-bean has been often urged as a succedaneum for coffee, which in principles it much resembles; only that it contains but half the quantity of oil. Mr. Boyle describes several experiments of beans treated pneumatically to show the great plenty of air they afford, on which their flatulency is supposed to depend. The expansion of beans in growing, the same author found so considerable, that it would raise a plug clogged with above an hundred pounds weight.

BEANS, in farriery. See FARRIERY, INDEX.

BEANS, in fishing, with proper management, make the finest of all baits. The method of preparing them for that purpose is this: take a new earthen pot glazed on the inside, boil some beans in it, suppose a quarter of a peck: they must be boiled in river water, and should be previously steeped in some warm water for six or seven hours. When they are about half boiled, put in three or four ounces of honey, and two or three grains of musk; let them boil a little on, then take them off the fire. They are to be used in this manner: seek out a clean place where there are no weeds, that the fish may see and take the beans at the bottom of the water. Throw some in at five or six in the morning, and in the evening for some days. This will draw them together, and they may be taken in a casting net in great numbers.

BEAN, BOG, or BEAN, BUCK. See MENYANTHES.

BEAN, CAPER. Fabago. A plant. See ZYGOPHYLLUM.

BEAN-CO, a small fishing-vessel or pilot-boat, common on the sea coasts and in the rivers of Portugal. It is extremely sharp forward, having its stem bent inward above into a great curve;

the stem is also plated on the fore side with iron, into which a number of bolts are driven, to fortify it, and resist the stroke of another vessel, which may fall athwart-hause. It is commonly navigated with a large lateen sail, which extends over the whole length of the deck, and is accordingly well fitted to ply to windward.

BEAN-FLOUR, called by the Romans lomentum, was of some repute among the ancient ladies as a cosmetic, wherewith to smooth the skin, and take away wrinkles.

BEAN-FLY, in natural history, the name given by authors to a very beautiful fly, of a pale purple color, frequently found on bean-flowers. It is produced from the worm or maggot called by authors Mida.

BEAN GOOSE, in ornithology. See ANAS.

BEAN, KIDNEY, in botany. See PHASEOLUS.

BEAN KIDNEY, TREE. See GLYCINE.

BEAN, MOLUCCA, or Anacardium, the fruit of a tree growing in Malabar and other parts of the East Indies, supposed by some to be the Avicennia tomentosa; by others, the bontia germinans. The fruit is of a shining black color, of the shape of a heart flattened, about an inch long, terminating at one end in an obtuse point, and adhering by the other to a wrinkled stalk. It contains within two shells a kernel of a sweetish taste; betwixt the shells is lodged a thick and acrid juice or oil. The medicinal virtues of anacardia have been greatly disputed. Many have attributed to them the faculty of strengthening the nerves, fortifying the memory, and quickening the intellect. Hence a confection made from them was once dignified with the title of confectio sapientium; but which others have thought better deserving the name of confectio stultorum, as instances are said to have occurred of its having rendered people maniacal. But the kernel of anacardium is not different in quality from that of almonds. The ill effects attributed to this fruit belong only to the oil contained betwixt the kernels, whose acrimony is so great, that it is said to be employed by the Indians as a caustic. This oil is of service externally for tetters, freckles, and other cutaneous deformities; which it removes only by exulcerating or excoriating the part, so that a new skin comes underneath. See ANACARDIUM.

BEAN TREE. See CORALLODENDRON.

BEAN TREE, BINDING. See MIMOSA.

BEAR, *v.* } *v. a.* pret. *I bore*, or *bare*;
BEAR'ER, *n.* } part. pass. *bore* or *born*; Sax.
BEAR'ING, } beopan, bepan, beoran; Gothic
BEAR'N. } *bairan*; Lat. *pario*; and Heb. *bara*, to create. Dr. Johnson remarks, that this word is used with such latitude that it is not easily explained. The general divisions of its meaning are to yield, to bring forth; to carry, to convey, and to transport; to endure, to suffer, to support, and to undergo. Yet is it in all these various significations to be distinguished from the words employed to explain it. *Bear* conveys the idea of creating within itself; *yield* that of giving from itself. Animals bear their young; inanimate objects *yield* their produce. an apple tree *bears* apples; the earth *yields* fruits. *Bear* marks properly the natural power of bringing forth something of its own kind; *yield* is said of the results or quantum brought forth. Shrubs *bear* leaves, flowers, or berries, according to their natural properties; flowers *yield* seeds plentifully, or otherwise, as they are influenced by circumstances. The second class of meanings attaching to this word, the sense of retaining as well as generating, is expressed by the words *carry*, *convey*, and *transport*; but these are not synonymous to bear. To *bear* is simply to take the weight of any substance upon one's self; to *carry* is to remove that weight from the spot where it was; we always *bear* in *carrying*, but we do not always *carry* when we *bear*. Both may be applied to things as well as persons; whatever receives the weight of any thing *bears* it; whatever is caused to move with any thing *carries* it. *Convey* and *transport* are employed for such actions as are performed not by immediate personal intervention or exertion: a porter *carries* goods on his knot; goods are *conveyed* in a waggon or a cart; they are *transported* in a vessel. It is customary at funerals for some to *bear* the pall, and others to *carry* wands or staves; the body itself is *conveyed* in a hearse, unless it has to cross the ocean, in which case it is *transported* in a vessel. In the sense of suffering and endurance, which is the third class of meanings in which this word is to be understood, it is likewise to be distinguished from its exegetical representatives. To *suffer* is a passive and involuntary act; it denotes simply the being a receiver of evil; it is therefore the condition of our being; to *bear* is positive and voluntary, it denotes the manner in which we receive the evil. To *bear* is a single act of the resolution, and relates only to common ills; we *bear* disappointments and crosses; to *endure* is a continued and powerful act of the mind. The first object of education should be to accustom children to *bear* contradictions and crosses, that they may afterwards be enabled to *endure* every trial and misery. To *bear* and *endure* signify to receive becomingly the weight of what befalls ourselves: to *support* signifies to *bear* either our own or another's evils; for we may either support ourselves, or be supported by others; but in this latter case we *bear* from the capacity which is within ourselves; but we *support* ourselves by foreign aid, that is, by the consolations of religion, the participation and condolence of friends, and the like.—*Crable*. An almost infinite variety of shades of meaning, approaching to and receding from these general divisions, must be observed by every one at all familiar with our best English writers.

For in trauayl of hys *berying* hys moder was first ded. *R. Glouceste*r.

For shall neuer brere *bere* beries as a vyne.
Piers Ploughman.

Lo! a virgyn schal haue in wombe and sche schal *bere* a sone, and they schulen clepe his name Emanuel. *Wiclif. Matt.* chap. i.

" I wol not fro the door wend
Tyll I have my staff." Thou bribour then have the todir end
Quod hi that was within; and ley'd it on his bak.
Right in the same place as chapmen *beren* their packe.
Chaucer. Canterbury Tales.

But he was mounted in his seat so high,
And his wing-footed coursers him did *beare*
So fast away, that ere his ready speare
He could advance, he farre was gone and past,
Yet still he him did follow everywhere. *Spenser.*

Pan may be proud that ever he begot
Such a bellibone;
And Syrinx rejoice that ever was her lot
To *beare* such an one. *Id. Shepheard's Calendar.*

But fayrest she, when so she doth display
The gate with pearles and rubies richly dight;
Through which her words so wise do make their way,
To *beare* the message of her gentle spright.
Id. Sonnets.

Withhold thine indignation, mighty heaven,
And tempt us not to *bear* above our power!
Shakspeare.

For my part, I had rather *bear* with you, than *bear* you; yet I should *bear* no cross, if I did *bear* you; for I think you have no money in your purse. *Id.*

The queen, that *bore* thee
Oftner upon her knees than on her feet,
Died every day she liv'd. *Id.*

There be some plants that *bear* no flower, and yet *bear* fruit; there be some that *bear* flowers and no fruit; there be some that *bear* neither flowers nor fruit. *Bacon.*

Where with his hands did help his feet to *bear*,
Else could they ill so huge a burthen steer.
Fletcher's Purple Island.

Majestic though in ruin: sage he stood
With Atlantean shoulders fit to *bear*
The weight of mightiest monarchies. *Milton.*

No keel shall cut the waves for foreign ware
For every soil shall ev'ry product *bear*. *Dryden.*

My message to the ghost of Priam *bear*;
Tell him a new Achilles sent thee there.
Id. Æneid.

A guest like him, a Trojan guest before,
In shew of friendship, sought the Spartan shore,
And ravish'd Helen from her husband *bore*. *Garth.*

Ye good distrest!
Ye noble few! who here unbending stand
Beneath life's pressure, yet *bear* up a while,
And what your bounded view, which only saw
A little part, deem'd evil, is no more;
The storms of wintry time will quickly pass,
And one unbounded spring encircle all. *Thomson.*

You'll see a draggled damsel here and there
From Billingsgate her fishy traffic *bear*. *Gay.*

I fancy the proper means of increasing the love we *bear* our native country, is to reside some time in a foreign one. *Shenstone.*

Let a man be brought into some such severe and trying situation as fixes the attention of the public on his behaviour,—the first question which we put concerning him is not what does he suffer? but how does he *bear* it? If we judge him to be composed and firm, resigned to providence, and supported by conscious integrity, his character rises, and his miseries lessen in our view *Blair.*

Each *bears* a prize of unregarded charms. *Byron.*

To bear up; to stand firm without falling; not to sink; not to faint or fail.

So long as nature
Will *bear up* with his exercise, so long
I daily vow to use it. *Shakspeare.*

Persons in distress may speak of themselves with dignity; it shews a greatness of soul, that they *bear up* against the storms of fortune. *Broome.*

The consciousness of integrity, the sense of a life spent in doing good, will enable a man to *bear up* under any change of circumstances. *Atterbury.*

When our commanders and soldiers were raw and unexperienced we lost battles and towns: yet we *bore up* then, as the French do now; nor was there any thing decisive in their successes. *Swift.*

To bear with. To endure an unpleasing thing.

They are content to *bear with* my absence and folly.
Sidney.

Though I must be content to *bear with* those that say you are reverend grave men; yet they lie deadly, that tell you, you have good faces. *Shakspeare.*

Look you lay home to him,
Tell him his pranks have been too broad to *bear with*.
Id.

Bear with me, then, if lawful what I ask.
Milton.

To bear in hand. To amuse with false pretences; to deceive.

Your daughter, whom she *bore in hand* to love
With such integrity, she did confess,
Was as a scorpion to her sight. *Shakspeare.*

His sickness, age, and impotence,
Was falsely *bore in hand*. *Id.*

He repaired to Bruges, desiring of the states of Bruges to enter peaceably into their town, with a retinue fit for his estate; and *bearing* them *in hand*, that he was to communicate with them of matters of great importance, for their good. *Bacon.*

All which I suffer, playing with their hopes,
And am content to win them into profit,
And look upon their kindness, and take more,
And look on that, still *bearing* them *in hand*.
Ben Jonson.

It is no wonder, that some would *bear* the world *in hand*, that the apostle's design and meaning is for presbytery, though his words are for episcopacy.
South.

To bear off. To carry away.

I will respect thee as a father, if
Thou *bear'st* my life *off* hence. *Shakspeare.*

The sun views half the earth on either way,
And here brings on, and there *bears off* the day.
Creech.

Give but the word, we'll snatch this damsel up,
And *bear* her *off*. *Addison. Cato.*

My soul grows desperate.
I'll *bear* her *off*. *A. Philips.*

To bear out. To support; to maintain; to defend.

I hope your warrant will *bear out* the deed.
Shakspeare.

I can once or twice a quarter *bear out* a knave against an honest man. *Id.*

Changes are never without danger, unless the prince be able to *bear out* his actions by power.
Sir J. Heyward.

Quoth Sidrophel, I do not doubt,
To find friends that will *bear* me *out*.
Hudibras.

Company only can *bear* a man *out* in an ill thing.
South.

I doubted whether that occasion could *bear* me *out* in the confidence of giving your ladyship any farther trouble. *Temple.*

To bear a brain. To exert attention. Ingenuity or memory.

My lord and you were then at Mantua:
Nay, I do *bear a brain*.
Shakspeare Romeo and Juliet.

But, still, take you heed, have a vigilant eye—
Well, sir, let me alone, I'll *bear a brain*.
All Fools, Old Play, iv. 177.

To bear six and six. An obscure phrase, occurring in the Spanish Curate of Beaumont and Fletcher.

He's the most arrant beast.
MELL. He may be more beast.
JAM. Let him *bear six and six* that all may blaze him. *Span. Cur.* ii. 3.

That the object is to make him a horned beast is plain from the context, but by what allusion is not so clear. He is to *bear six and six*, as his arms. After one or two unsatisfactory conjectures, it was suggested to me that the expression most probably alluded to the horns of a ram, which by the aid of a little fancy may be considered as two figures of six, placed back to back 9 6. That this is the true interpretation there seems no reason to doubt. *Nares. Glossary.*

BEARING-CLOTH. The mantle or cloth with which a child is usually covered when carried to church to be baptised, or produced among the gossips by the nurse.

Here's a sight for thee; look there, a *bearing-cloth* for a squire's child; look thee here, take up, take up boy; open't. *Shakspeare.*

BEAR', BEAR'BAITING, BEAR'GARDEN, BEAR'HERD, BEAR'ISH, BEAR'SLEEK, BEAR'LIKE, BEAR'SKIN, BEAR'WARD, BEAR'WHELP. Sax. bera, Germ. *baer*, Lat. *ursus*. Others derive it from the Greek βειρος, which they interpret *pilosum villosum* (*ursus, quasi harsus, hirsutus, pilis horrens.*) A hairy shaggy animal, a she bear, shaggy, and of horrid aspect.

Some have falsely reported, that *bears* bring their young into the world shapeless, and that their dams lick them into form. *Calmet.*

A cruel *beare*, the which an infant bore
Betwixt his bloodie jawes besprinkled all with gore.
Spenser.

I would I had bestowed that time on the tongues, that I have in fencing, dancing, and *bear-baiting*. O, had I but followed the arts.
Shakspeare. Twelfth Night.

They have tied me to a stake I cannot fly,
But *bear-like* I must fight the course. *Id. Macbeth.*

Virtue is of so little regard in these costermonger times, that true valour is turned *bear-herd*.
Id. Henry IV.

Like to a chaos, or an unlick'd *bear-whelp*,
That carries no impression like the dam. *Id. Hen. VI.*

Call hither to the stake my two brave *bears*,
Bid Salisbury and Warwick come to me.——
—Are these thy *bears*; we'll bait thy *bears* to death.
And manacle the *bearward* in their chains. *Id.*

Thou'dst shun a *bear*;
But if thy flight lay tow'rd the raging sea,
Thou'dst meet the *bear* i' th' mouth. *Id.*

COR. O, by your leave, sir,
I must be bold to raise you; else your physic
Will turn to futher sickness.
MEL. ——— Physic, *bear-leech*?
COR. Yes; physic! You are mad. *Ford.*

The worsted *bear* came off with store
Of bloody wounds, but all before:
For as Achilles dipt in pond,
Was anabaptiz'd, free from wound,
Made proof against dead-doing steel
All over but the pagan heel—
So did our champion's arms defend
All of him but the latter end. *Butler's Hudibras.*

His surcoat was a *bearskin* on his back. *Dryden.*

In our own language we seem to allude to this degeneracy of human nature, when we call men, by way of reproach, sheepish, *bearish*, &c. *Harris.*

I must propose some methods for the improvement of the *bear-garden*, by dismissing all the bodily actors to that quarter. *Spectator.*

Our nobility also kept their *bear-ward*. *Pennant.*

BEAR, the name of two constellations, called the *greater* and *lesser bear*; in the tail of the *lesser bear* is the pole star.

The chiding billow seems to pelt the clouds,
The wind-shak'd surge with high and monstrous main,
Seems to cast waters on the burning *bear*,
And quench the guards of the ever fixed pole,
I never did like molestation view
On the enchafed flood. *Shakspeare.*

Others derive it from the *bear*
That's fixed in northern hemisphere,
And round about his pole does make
A circle like a *bear* at stake,
That at the chain's and wheels about
And overturns the rabble rout. *Butler's Hudibras.*

E'en then when Troy was by the Greeks o'erthrown
The bear oppos'd to bright Orion shone. *Creech.*

BEAR, in astronomy. See URSA.

BEAR, in zoology. See URSUS.

BEAR, in heraldry; this animal occurs as a charge in coats of arms, as, 'He beareth, or, a bear passant, *sable*;' by the name of Fitzours: and rampant, as in fig. 1.

Fig. 1.

Fig. 2.

Bears' heads are also borne in coat armour mostly erased, as in fig. 2. '*Argent*, a chevron between three bears' heads erased, *sable*, muzzled, *or*;' by the name of Pennarth.'

BEAR, ORDER OF THE, was a military order in Switzerland, erected by the emperor Frederic II. in 1213, by way of acknowledgment for the service the Swiss had done him, and in favor of the abbey of St. Gall. To the collar of the order hung a medal, on which was represented a bear, raised on an eminence of earth.

BEAR, SEA. See PHOCA.

BEAR ISLAND, an island in Bantry bay, Ireland, six miles in length, and one and a half broad, hilly and rugged, where batteries have been erected for the defence of the bay. Distant twelve miles from Bantry. Long. 9° 45′ W., lat. 51° 35′ N.

BEAR ISLAND, a small island in the Atlantic, on the coast of Main. Long. 68° 20′ W., lat. 44° 6′ N.

BEAR LAKE, BLACK, a lake of North America, in long. 107½ W., lat. 53½ N. The navigation is full of impediments from islands and rapids.

BEAR LAKE, GREAT, a considerable lake in the north-west of America, near the arctic circle. The North-west Expedition reached it in the summer of 1820, and lieutenant Franklin and his

party wintered here. In the ensuing spring they attempted to reach the ocean by the Coppermine river; but, unable to accomplish their object, they returned to this lake the same year in great distress, and passed a second winter in the neighbourhood.

Bear Town, in Carolina county, Maryland, lies about seven miles north from Greensburgh, and about fifteen miles south-east from Chestertown.

Bear's Breech, in botany. See Acanthus.

Bear's College, a jocular expression for the bear-garden, commonly called Paris garden.

From the diet and the knowledge
Of the students in *bears' college*.
Ben Jonson. Mask of Gips.

Bear's Ear, in botany, a name sometimes given to the primula villosa, or auricula; also to the saxifraga sarmentosa, or Chinese saxifrage.

Bear's Foot, a name given to the helleborus fœtidus.

Bear's Flesh was much esteemed by the ancients: even at this day the paw of a bear, salted and smoked, is served up at the table of princes.

Bear's Grease was formerly esteemed a sovereign remedy against cold disorders, especially rheumatisms. It is now much used in dressing ladies and gentlemen's hair.

Bear's Skin affords a fur in great esteem, and on which depends a considerable article of commerce, being used in housings, on coach-boxes, &c. In some countries clothes are made of it, more especially bags wherein to keep the feet warm in severe colds. Of the skins of bears' cubs are made gloves, muffs, and the like.

To Bear a Body. A color is said to bear a body in painting, when it is capable of being ground so fine, and mixing with the oil so entirely, as to seem only a very thick oil of the same color.

BEARD, *v.* & *n.* } The applications of this
Be'arded, } word are better under-
Beard'less. } stood than its etymology; the full obvious meaning of it is the hair that grows on the lips and chin. It is supposed to be derived from the German baren, to show or manifest, because the beard is an indication of manhood: but this is not to my mind satisfactory; its metaphorical application is to the sharp prickles growing on the ears of corn; to the barb of an arrow; it also describes the hairy tuft that grows from the chin of some animals; the *beard* of a horse is that part which bears the curb of the bridle; the length of the beard marks age; to *beard* also is to take or pluck by the *beard* in contempt or anger; to oppose to the face; to set at open defiance; adopted, according to Mr. Stevens, from romance; in the old language of which it signified, *to cut off the beard*; *beardless*, without a *beard*; a boy.

A merchant was there with a forked *berd*.
Chaucer. Prologue to the Canterbury Tales.

A Franklein was in this compagnie
White was his *berd* as is the dayesie. *Id.*

His *berd* as any sowe or fox was rede,
And thereto brode as though it were a spade.
Upon the cop right of his nose he hade
A wert, and thereon stode a tuft of heres,
Rede as the bristles of a sowes eres. *Id.*

Art thou the caytive that defyest me,
And for this mayd, whose party thou dost take?
Wilt give thy *beard*, though it but little be?
Yet shall it not her lockes for raunsome fro me free. *Spenser.*

He that hath a *beard* is more than a youth; and he that hath no *beard* is less than a man. *Shakspeare.*

shall a *beardless* boy,
A cocker'd silken wanton, brave our fields,
And flesh his spirit in a warlike soil,
Mocking the air with colours idly spread,
And find no check. *Id.*

No man so potent breathes upon the ground,
But I will *beard* him. *Id.*

——— and began to hem him round
With ported spears, as thick as when a field
Of Ceres ripe for harvest waving bends
Her *bearded* grove of ears, which way the wind
Sways them. *Milton.*

Ere on thy chin the springing beard began,
To spread a doubtful down, and promise man.
Prior.

Some thin remains of chastity appear'd,
Ev'n under Jove, but Jove without a *beard*.
Dryden.

Would it not be insufferable for a professor to have his authority, of forty years standing, confirmed by general tradition and a reverend *beard*, overturned by an upstart novelist? *Locke.*

Paints, d'ye say?
Why she lays it on with a trowel—Then she has a great *beard*, that bristles through it, and makes her look as if she were plastered with lime and hair.
Congreve. Double Dealer.

The *beard*, conformable to the notion of my friend Sir Roger, was for many ages looked upon as the type of wisdom. Lucian more than once rallies the philosophers of his time, who endeavoured to rival one another in *beards*; and represents a learned man who stood for a professorship in philosophy, as unqualified for it by the shortness of his *beard*. *Spectator.*

Girt with many a baron bold,
Sublime their starry fronts they rear;
And gorgeous dames, and statesmen old
In *bearded* majesty, appear. *Gray.*

The artificial part of a feather is the *beard*, or as it is sometimes I believe called, the vane. By the *beards* are meant, what are fastened on each side of the stem, and what constitute the breadth of the feather; what we usually strip off from one side or both when we make a pen.
Paleys Natural Theology.

But if thy *beard* had manlier length,
And if thy hand had skill and strength,
I'd joy to see thee break a lance,
Albeit against my own perchance.
Byron. Bride of Abydos.

I should have *bearded* him in halls of pride,
I should have mated him in fields of death;
Not stolen upon his secret bower of peace,
And breathed a serpent's venom on his flower.
Maturin's Bertram.

Beards. 'Neither errors nor beards,' as archbishop Tillotson says, 'are inconveniences lately sprung up in the world.' As the distinguishing sign of mature manhood, the beard has in all ages commanded attention, and received particular veneration from the less civilised part of man-

kind. But Moses is the earliest legislator on the subject. The command which God gave by him to the Israelites, 'Thou shalt not mar the corners of thy beard' (Lev. 19, 27.), seems clearly to allude to some previous well-known custom, probably of the Egyptians. Maimonides, as quoted by Whitby, describes the 'five corners' of the beard, 'none of which,' says he, 'much less all, they might shave off, as the manner of the idolatrous priests was.' More Nevoch, c. xxxvii. Herodotus confirms this with regard to the Egyptian priests, who, as he tells us, shaved the head, chin, and whole body. Accordingly, most of the Egyptian figures are without beard. He further informs us, that in time of calamity, they suffered their beard and hair to grow. The Jews also, in time of mourning, neglected to trim their beards, that is, to cut off what grew superfluous on the upper lips and cheeks. But occasionally manifested their grief in great afflictions by plucking off the hair of their beard. The veneration of the Jews for this appendage of manhood, in the brightest period of their history, is strongly exemplified in the indignation which was felt by the ambassadors of David, when they were outraged in this respect by Hanun the Ammonite, 2 Sam. x. 'The men,' it is said, 'were greatly ashamed,' and 'the children of Ammon stank before David.' We were lately much amused with the argument of a learned modern Jew for the obligation of wearing his beard: 'two of the strongest implications,' he said, 'of the laws of his people required it; the above command, Lev. xix. 27, not to mar its corners, which he contended could only apply when the beard was worn; and the general precept, Deut. xxii. 5, forbidding either sex to wear that which 'pertaineth' to the other—a beardless face being, according to nature, he insisted, a woman's face.'

The Assyrians, says Strabo, xvi., like the Egyptians, permitted their beards to grow in seasons of grief. The Persians, on the contrary, shaved not only themselves in honor of the dead, but docked the tails, and cropped the manes, of their horses and mules. Compare Her. ix. 24, Il. κ. 45.

According to the fables of the Greeks, when Thetis wished to revenge the wrongs of her son, she approached the knees of Jupiter with a kiss, and touched his beard in supplication. In the same manner Dolon would have besought pity from Diomede; and if he could have touched the warrior's beard, his life, perhaps, would have been secure. *Il.* κ. 454.

Athenæus observes that the Greeks always wore their beards till the time of Alexander; and that the first who cut it at Athens ever after bore the addition of κορσης, shaven, on medals. He records a sarcasm of Diogenes, who asked a smooth chined voluptuary 'whether he quarrelled with nature for making him a man instead of a woman?' xiii. 2. Plutarch states that Alexander commanded the Macedonians to be shaven, lest the length of their beards should give a handle to their enemies. But his father, as well as Amyntas and Archelaus, his predecessors, are represented on medals without beards. The Greek philosophers distinguished themselves from the vulgar by their long beards: the custom, however, was not invariable; for the scholiast of Aristophanes, Nub. 120, asserts that the ancient philosophers shaved their beards. The Greeks continued to shave till the time of Justinian, under whose empire long beards came again into fashion, and so continued till Constantinople was taken by the Turks. The Roman philosophers affected to preserve the distinctive character of the mantle and long beard. Horace describes them:

> ——— 'Tempore quo me
> Solatus jussit sapientem pascere barbam.'
> *Sermon*, l. ii. sat. iii. v. 34.

and Aulus Gellius and Lucian express themselves in a similar manner. Persius seems to have been so convinced of the beard's being the symbol of wisdom, that he thought he could not bestow a greater encomium on Socrates than calling him 'Magistrum barbatum.'

From the building of the city, till the year of its foundation 454, barbers are said to have been unknown at Rome. They were first imported from Sicily by Publius Licinius. There is some contradiction however on this point among the ancient writers. Pliny, vii. 59, Aulus Gellius, iii. 4., and Varro, de Re Rust. ii. 2., concur in the foregoing statement. Livy, on the contrary, among the other signs of popular mourning, after the execution of Manlius Capitolinus, which took place in the year U.C. 369, enumerates the letting the beard grow, which, unless shaving had been customary, could not have been noticed. Scipio Africanus is said to have been the first daily shaver at Rome. Slaves wore their beards and hair long; but, when manumitted, shaved their heads in the temple of Feronia, and put on a cap, or 'pileus,' as a badge of liberty. Those who escaped from shipwreck, shaved their heads; and persons acquitted of a capital crime, cut their hair and shaved, and went to the capitol to return thanks to Jupiter. The Roman emperors shaved till the time of Adrian, who retained the mode of wearing the beard, as Plutarch tells us, to hide the scars in his face.

According to Suetonius, Calig. 10., the young Romans were first shaved when the toga virilis was assumed. Macrobius, Somn. Scip. i. 6., says it was about the age of twenty-one. Augustus did not shave before the age of twenty-five. Young men with a long down, or 'lanugo,' upon the chin, were called 'juvenes barbatuli,' or 'benè barbati.' The day on which they first shaved, among the Greeks and Romans, was a festival; visits of ceremony were paid them; and they received presents from their friends, as Juvenal, Sat. iii. 186,

> 'Ille metit barbam, crinem hic deponit amati:
> Plena domus libis genialibus.'

The first growth of the beard being consecrated to some god, usually to the Lares. Nero consecrated his in a golden box, set with pearls, to Jupiter Capitolinus.

Persons of respectability had their children shaved the first time by others of the same, or greater quality, who by this means became their fathers, or adoptive fathers, of the children: a custom which was handed down to Rome Che-

tian, in which a person became godfather of a child by barely touching his beard: thus historians relate, that one of the articles of the treaty between Alaric and Clovis was, that Alaric should touch the beard of Clovis, and become his godfather. This was also an ancient form of tokens on oath, Aumoin, lib. iv.

Ecclesiastical discipline has varied much on the article of beards: sometimes they have been enjoined on the clergy from a notion of too much effeminacy in shaving, and that a long beard was more suitable to the ecclesiastic gravity; at other times they are forbidden, from the supposed danger of pride lurking beneath a venerable beard. The Greek and Romish churches long disputed on this important matter. Since the time of their separation, the Romanists seem to have given more into the practice of shaving, by way of opposition to the Greeks; and have even made some express constitutions 'de radendis barbis.' The Greeks, on the contrary, espouse very zealously the cause of long beards, and are extremely scandalised at the beardless images of saints in the Roman churches: There are still extant prayers used in the latter on the solemnity of consecrating the beard to God, when an ecclesiastic was shaven.

The barbarous nations of Europe appear very generally to have shaved, some of them reserving the mustachios. When the Franks made themselves masters of Gaul, and assumed the authority of the Romans; the bondsmen were expressly ordered to shave their chins; a law which continued in force until the entire abolishment of servitude in France. So likewise, in the time of the first race of their kings, a long beard was a sign of nobility and freedom. Princes were emulous of having the largest beard; Eginard, secretary to Charlemagne, speaking of the last kings of the first race, says, they came to the assemblies in the Champ de Mars in a carriage drawn by oxen, and sat on the throne with their hair dishevelled, and a very long beard, rine profuso, barba submissa, solio residerent, t speciem dominantis effingerent. To touch ny one's beard, or cut off a bit of it, was, mong the first French, the most sacred pledge f protection and confidence. For a long time ll letters that came from the sovereign had, for reater sanction, three hairs of his beard in the eal. There was long in being a charter of 1211, hich concludes with the following words: uod ut ratum et stabile perseveret in posterum, æsentis scripto sigilli mei robur apposui cum ibus pilis barbæ meæ. In the tenth century obert of France, the famous rival of Charles e Simple, that it might be the more conicuous to his soldiers when he was in the eld, used to let his long white beard hang down the outside of his cuirass. French historians escribe the beard of Henry IV., deservedly yled the Great, as diffusing over the countemance of that prince a high degree of amiable penness, and majestic sweetness. By the preature death of that prince, the beard, hitherto highly respected, experienced a sudden and tal revolution. Louis XIII. mounted the throne his father without one. Every one concluded mediately, that the courtiers, seeing their young king with a smooth chin, would look upon their own as too rough. The conjecture proved right; for they presently reduced their beards to simple whiskers, and a small tuft of hair under the nether lip. The people at first would not follow this dangerous example, and the duke of Sully never would adopt it. He kept his long beard, and appeared with it at court, and observing himself ridiculed by the young, said to the king, 'Sir, when your father, of glorious memory, did me the honor to consult me on his great and important affairs, the first thing he did was to send away all the buffoons and stage-dancers of his court.' Whiskers now attained their highest degree of favor, at the expense of expiring beards. A fine black whisker, elegantly turned up, was a very powerful mark of dignity with the fair sex, and it was no uncommon thing for a favorite lover to have his whiskers turned up, combed, and pomatumed, by his mistress; for this purpose, a man of fashion took care to be always provided with every little necessary article, especially whisker wax. Whiskers were still in fashion in the beginning of Louis XIV's reign. That prince, and all the great men of his reign, took a pride in wearing them. They were the ornament of Turenne, Condé, Colbert, Corneille, Moliere, &c. But they now underwent several changes both in form and name: there were Spanish, Turkish, guard dagger, royal whiskers, &c., until their smallness proclaimed their approaching departure. In English history we have no such copious details on this mighty subject. Although the ancient Britons are supposed to have shaved all but the upper lip, Edward the confessor is represented, on his great seal, with a large beard and mustachios. When spies, according to William of Malmesbury, were sent by Harold into the camp of William I. they returned with an assurance of victory, since their enemies were priests, they said, and not soldiers, being all shaven. William the conqueror, on his seal, appears with a short beard and mustachios. Among the edicts which he imposed upon the English, few were considered more oppressive than that which enjoined the practice o shaving. Like a similar edict of Peter I. o Russia, it was perpetually disobeyed, and the hatred of it led in many cases to open insurrection. The Romish clergy, it seems, assumed the right to legislate for princes on this topic among others. The beard of Henry I. was loudly condemned by them; Orderic Vitalis and Serlo both denounced it from the pulpit. The king, to avoid these fulminations, shaved the offending part; yet within twenty years we again find it on the effigy of Henry II. on his seal. In the reign of Henry VIII. it is well known, Sir Thomas More exhibited on the block this memorable ornament: and perceiving it was likely to be cut by the axe of the executioner; took it away, saying, my beard has not been guilty of treason: it would be an injustice to punish it. In Shakspeare we read of 'your straw-colored beard, your orange-tawny beard, your purple in-grain beard, and your perfect yellow.' Bottom's Histrionic Company are instructed to have 'good strings to their beards;' an advice which has escaped explanation. 'A beard of the General's cut' is

noticed in Henry V. 'A great round beard' is disapproved of in The Merry Wives of Windsor, and compared to 'a glover's paring knife.' Charles I. wore mustachios and a short peaked beard: Charles II. mustachios alone: since the Revolution, except among our modern soldiery, the face has been entirely smooth:—The Spaniards have a proverb, which perhaps suggested the new fashion in the Hussar regiment. Desde que no hay barba, no hay mas alma. 'Since we have lost our beards, we have lost our souls.' Among the European nations that have been most curious in beards and whiskers, none have been more distinguished than Spain.

We cannot pursue the details of this subject much farther. The Portuguese, whose national character is similar to that of the Spaniards, have imitated them in this respect. We read, that in the reign of Catherine queen of Portugal, when John de Castro had taken the castle of Diu, in India, he was under the necessity of borrowing from the inhabitants of Goa a thousand pistoles for the maintenance of his fleet; and that, as a security for the loan, he sent them one of his whiskers, telling them 'all the gold in the world cannot equal the value of this national ornament of my valor; and I deposit it in your hands as a security for the money.' The inhabitants of Goa, it is said, generously returned both the money and his whisker. Le Comte observes, that the Chinese affect long beards extravagantly; but nature has baulked them, and only given them very little ones, which, however, they cultivate with infinite care; the Europeans are strangely envied by them on this account. Among the Turks it is more infamous for any one to have his beard cut off, than among us to be publicly whipt or branded with a hot iron. There are many people in that country, who would prefer death to this kind of punishment. The Arabs make the preservation of their beards a capital point of religion, because Mahomet never cut his. Hence the razor is never drawn over the Grand Seignior's face. The Persians, who clip them, and shave above the jaw, are reputed heretics. It is likewise a mark of authority and liberty among them, as well as among the Turks. They who serve in the seraglio, have their beards shaven as a sign of their servitude. They do not suffer it to grow till the sultan as a reward has set them at liberty.

Of that singular variety of our race, bearded women, many marvellous stories are told. Herodotus speaks of a people above Halicarnassus, the Pedasenes, amongst whom the chin of the priestess of Minerva regularly budded with a large beard, when any great public calamity impended. Her. i. 175. Hippocrates tells us of two bearded women of respectability, Phactusa of Abdera, the wife of Pythias, and Hamysia of Thasos, the wife of Gorgippus. Generally, where this peculiarity has occurred, the menses have totally ceased. Eusebius Nieurembergius mentions a woman, who had a beard reaching to her navel; and Bartholin speaks of a bearded woman well known at Copenhagen. Whether it convinced his imperial majesty that beards no longer distinguished men, and therefore produced his decree against them, we are not told; but a woman is said to have been taken in 1724, by the Prussian army in the battle of Pultowa, and carried to Petersburg, where she was presented to the Czar, Peter I. whose beard measured a yard and a half. We read in the Trevoux Dictionary, that there was a woman seen at Paris, who had not only a bushy beard on her face, but her body likewise covered all over with hair. The great Margaret, the governess of the Netherlands, is said also to have had a very long stiff beard, on which she prided herself; and preserved it with the greatest care. In the nursery of Albert, Duke of Bavaria, in the time of Wolfius, there was reported to be a virgin with a large black beard; but these good ladies, young or old, have been singularly rare in modern times, and in all well-authenticated history.

BEARDS, in entomology, are two small, oblong, fleshy bodies, placed just above the trunk, as in the gnats, and in the moths and butterflies.

BEARDS of COMETS. See COMET.

BEARDS OF HORSES. The part underneath the lower mandible, on the outside and above the chin, which bears the curb, is called the beard or chuck. It should have but little flesh upon it, without any chops, hardness, or swelling; and be neither too high raised nor too flat, but such as the curb may rest in its right place.

BEARDS OF MUSCLES, OYSTERS, &c. denote assemblages of threads or hairs, by which those animals fasten themselves to stones. The hairs of this beard terminate in a flat spongy substance, which being applied to the surface of a stone, sticks thereto, like the wet leather used by boys in what they call a sucker.

BEARD (John), an English actor and singer, was brought up a sizer in the king's chapel. In 1737 he made his first appearance on the stage, at Drury-lane, in the character of Sir John Loverule, in the Devil to Pay. About two years after he married lady Henrietta Herbert, daughter of the earl of Waldegrave, and widow of lord Edward Herbert; but this connexion brought him little fortune, and though he gave up the stage, for some time, he returned again to it, until 1758, when he joined with Mr. Rich, whose daughter he had married on the death of his former wife. He died in 1763, aged seventy-four.

BEARDED BROTHERS, fratres barbati, are particularly used in ecclesiastical writers for those otherwise called fratres conversi in the order of Grammont and of the Cistercians. They took this denomination because they were allowed to wear their beards, contrary to the rules of the professed monks.

BEARDED HUSK, among florists, a husk which is hairy on the edges, as that of the rose, &c.

BEARDED VENUS. The Romans paid their devotions to a bearded Venus, Veneri barbatæ, supposed to have been of both sexes. A statue of her was found in the Isle of Cyprus.

BEARERS, at funerals, is applied to the supporters of the pall. The ancients had peculiar orders or officers of bearers, called by the Greeks κοπεατοι; by the Romans, lecticarii. The vespillones, or bajuli, were a lower sort of bearers, appointed for persons of inferior rank.

BEARERS, gestantes, in writers of the middle age, are sometimes used for a child's gossips.

because they hold the infant in their arms, and present him to the priest in the ceremony of baptism.

Bearers, in heraldry, or supporters, are certain figures, standing on the scroll, and placed by the side of an escutcheon, which they seem to bear up. They are, chiefly, figures of beasts: figures of human creatures, used for the like purpose, are more properly called tenants. Some make another difference between tenant and bearer, or supporter: when the shield is borne by a single animal, it is called tenant; when by two, they are called bearers, or supporters. The figures of things inanimate, sometimes placed aside of escutcheons, but not touching, or seeming to bear them, though sometimes called bearers, are more properly called cotises. Bearers have formerly been taken from such animals as were borne in the shields; and sometimes they have been chosen as bearing some allusion to the names of those whose arms they are made to support. F. Menestrier traces their origin to the ancient tournaments, in which the knights caused their shields to be carried by servants or pages under the disguise of lions, bears, griffins, blackmoors, &c. who also held and guarded the escutcheons, which the knights were obliged to expose to public view some time before the lists were opened. But Sir G. Mackenzie says, that the first origin and use of them are derived from the custom of leading such as are invested with any great honor to the prince who confers it, and this being supported by two of the quality when he receives the symbols of such honor: and, in remembrance of that solemnity, his arms were afterwards supported by any two creatures which he might choose. See Supporters.

Bearers, in horticulture, denote the fruit branches, or such as bear fruit. The bearers, or bearing branches of an apple-tree, and the like, are found to be rougher, and fuller of asperities in their bark, than the other branches.

Bearers of a Bill of Exchange, denote the persons in whose hands it is, and in favor of whom the last order or indorsement was made. When a bill, or order for money, is said to be payable to bearer, it is understood to be payable to him who first offers himself after it becomes due. To be paid a bill or order of this kind, there needs neither indorsement nor transfer; yet it is proper to know to whom it is paid.

Bearing, in heraldry, a term used to express the coat of arms, or the figures of armories, by which the nobility and gentry are distinguished from the other ranks of the people, and from one another. These signs of nobility with us are evidently a copy of the statues and images among the ancient Romans, which they used to expose before their houses on public days, and carried before the body at the funeral of a great person. These statues among them bore the resemblances of their noble ancestors. And as our coats of arms evidently were brought in the place of them, we may date the origin of heraldry in England, now practised, from the time of the subversion of the Roman empire by the Goths and Vandals; who, as they destroyed many liberal arts, so they seem, in return, to have given birth to the science of heraldry; for which their posterity, it must be confessed, are under few obligations. These warlike nations, having subdued the Roman empire and raised their glory by military service, became fond of the achievements of their ancestors and great men, and derived their ensigns and titles of honor from what concerned a soldier. They first distinguished the whole community into three ranks, which they named according to the different orders of military, miles, eques, and scutifer; and their posterity, willing to commemorate their honors, reserved to themselves their military ensigns, and these became what we call bearings, or arms, the marks of gentility or of families, some one of which had once deserved an elevation above the common rank of men. While the direct descendant of this honorable person carried his ensigns of honor for his distinction, the collateral branches also were ambitious of preserving the memory of their having belonged to such an honorable house; and therefore assumed the same figure, but with some difference, to distinguish the distance from the original claim. In process of time, other families, who had deserved as well of their prince and country, whether in civil or military affairs, became desirous of the same sort of distinction, by way of perpetual memorial of their services; and upon this occasion many other devices were formed into arms, and continued down to posterity in their several families. Armorial bearings, in the tenth and eleventh centuries, were single and plain, consisting only of few figures. Charges, differences, quarterings, &c. are the inventions of later times. See Heraldry.

Bearing, in navigation, an arch of the horizon intercepted between the nearest meridian and any distant object, either discovered by the eye, or resulting from the sinical proposition; as in the first case, at four P. M. Cape Spado, in the isle of Candia, bore south by west by the compass. In the second, the longitudes and latitudes of any two places being given, and consequently the difference of latitude and longitude between them, the bearing from one to the other is discovered by the following analogy:—As the meridional difference of latitude is to the difference of longitude, so is radius to the tangent bearing. Bearing is also the situation of any distant object, estimated from some part of the ship according to her position. In this sense, an object so discovered must be either a-head, a-stern, a-breast, on the bow, or on the quarter. These bearings, therefore, which may be called mechanical, are on the beam, before the beam, abaft the beam, on the bow, on the quarter, a-head, or a-stern. If the ship sails with a side wind it alters the names of such bearings in some measure, since a distant object on the beam is then said to be to leeward or to windward; on the lee-quarter or bow, and on the weather-quarter or bow.

Bearing, in sea language. When a ship sails towards the shore, before the wind, she is said to bear in with the land or harbour. To let the ship sail more before the wind, is to bear up. To put her right before the wind, is to bear round. A ship that keeps off from the land is said to bear off. When a ship that was to windward comes under a ship's stern, and so gives her the wind,

she is said to bear under her lee, &c. There is another sense of this word, in reference to the burden of a ship; for they say a ship bears, when, having too slender or lean a quarter, she will sink too deep into the water with an overlight freight, and thereby can carry but a small quantity of goods.

Bearing away (as well as Bearing up) is improperly used to denote the act of changing the course of a ship, in order to make her sail before the wind, after she had sailed some time with a side-wind, or close-hauled.

Bearing of an Arch, or Vault, denotes the effort which the stones make to separate by their gravity the piers or piedroits. This amounts to the same with what the French call poussée. See Poussee.

Bearing of an Organ Pipe denotes an error or variation from the just sound it ought to yield.

Bearing of a Stag, in hunting, is used in respect of the state of his head, or the croches which he bears on his horns. If one is asked what a stag bears, he has only to reckon the croches, but never to express an odd number; as, if he had four croches on his near horn, and five on his far, a huntsman will say he bears ten, a false right on his near horn; if but four on the near horn, and six on the far horn, he will say he bears twelve, a double false right on the near horn.

Bearing off is used by seaman, generally in business belonging to shipping, for thrusting off. Thus in hoisting any thing into the ship, if it has caught hold of any part of the ship, or become any way entangled, they say, bear it off from the ship's side. So if they would have the breech or mouth of a piece of ordnance, &c. put from them, they say, bear off, or bear about the breech.

Bearing sail well is said of a ship, when she is a stiff-guided ship, and will not couch down on a side with a great deal of sail. When a ship is said to bear out her ordnance, it is meant, that her ordnance lies so high, and she will go so upright, that in reasonable fighting weather, she will be able to keep out her lower tier, and not be forced to shut in her ports. The ship is said to overbear another, when it is able, in a great gale of wind, to carry out more sails, viz. a top sail more or the like.

BEARN, a ci-devant province of France bounded on the east by Bigorre, on the south by the mountains of Arragon, on the west by Soule and part of Navarre, and on the north by Gascony, and Armagnac. It had the title of Vicomté as early as the ninth century. It was afterwards raised to a principality, and belonged, with Navarre, to Henry IV. when he came to the crown. His son, Louis XIII, united it, with that part of Navarre which was possessed by the house of Albret, to France, in 1620. It now forms with Basques, the department of the lower Pyrenees, and is about sixteen leagues in length, and twelve in breadth. In general it is barren, yet the plains yield considerable quantities of flax, and Indian corn. It is also rich in mines of iron, copper, and lead, and has 220,000 inhabitants. The capital is Pau. See Pyranees.

Bearn, a city and canton of Switzerland. See Bern.

BEAST, Be'astlike, Be'astliness, Be'astly, Be'astlihood, Be'astings. *Beste*, Fr. *bestia*, Latin. an animal distinguished from birds, insects, fishes, and man; an irrational creature; or a brutal savage man, who practises any thing contrary to the decencies of life and the dictates of humanity.

If that the good man, that the *bestes* oweth,
Wol every weke, er that the cock him croweth
Fasting ydrinken of this well a draught,
As thilke holy Jew our eldre taught,
His *bestes* and his store shall multiplie.
Chaucer. Pardoneres Tale.

A *beestli* man parseyueth not tho thingis that ben of the spyrit of God, for it is foli to him.
Wickliff. 1 Cor. chap. ii.

They held this land, and with their filthiness
Polluted this same gentle soil long time;
That their own mother loath'd their *beastliness*,
And 'gan abhor her brood's unkindly crime.
Spenser. Faerie Queene.

And all wylde *beasts*, made vassals of his pleasures,
And with their spoyles enlarged his private treasure.
Id. Mother Hubbard's Tale.

Not that I being a *beast*, she would have me, but that she, being a very *beastly* creature, lays claim to me. *Shakspeare.*

With lewd, profane, and *beastly* phrase,
To catch the world's loose laughter or vain gaze.
Ben Jonson.

So may we see a little lionet,
When newly whelpt, a weak and tender thing,
Despis'd by ev'ry *beast*; but waxen great,
When fuller times full strength and courage bring,
The *beasts* all crouchen low, their king adore,
And dare not see what they contemn'd before;
The trembling forest quakes at his affrighted roar.
Fletcher. Purple Island.

The sixth, and of creation last, arose
With evening harps and matin, when God said,
Let th' earth bring forth soul living in her kind,
Cattle and creeping things, and *beasts* of th' earth,
Each in their kind. *Milton.*

Here sat she by these musked eglantines;
The happy flowers seem yet the print to bear:
Her voice did sweeten here thy sugar'd lines
To which winds, trees, *beasts*, birds, did lend an ear.
Drummond.

Heaven's king
Keeps register of every thing:
And nothing may we use in vain,
Ev'n *beasts* must be with justice slain
Marvell. Wounded Fawn.

Beast of a bird! supinely when he might
Lie snug and sleep, to rise before the light!
What if his dull forefathers us'd that cry,
Could he not let a bad example die. *Dryden.*

Medea's charms were there, Circean feasts
With bowls that turn'd enamour'd youths to beasts.
Id.

It is charged upon the gentlemen of the army, that the *beastly* vice of drinking to excess hath been lately, from their example, restored among us. *Swift.*

Man cares for all! to birds he gives his woods,
To *beasts* his pastures, and to fish his floods. *Pope.*

O ye woods, spread your branches apace;
To your deepest recesses I fly;
I would hide with the *beasts* of the chase,
I would vanish from every eye.
Shenstone. Pastoral.

Inspiring dumb
And helpless victims with a sense so keen
Of injury, with such knowledge of their strength,
And such sagacity to take revenge,
That oft the *beast* has seem'd to judge the man.
Cowper. Task. b. vi.

BEAST, among gamesters, a game at cards, played in this manner: the best cards are the king, queen, &c. whereof they make three heaps, the king, the play, the troilet. Three, four, or five may play, and to every one is dealt five cards. But before the play begins, every one stakes to the three heaps. He that wins most tricks, takes up the heap called the play: he that has the king, takes up the heap so called: and he that has three of any sort, that is three fours, three fives, three sixes, &c. takes up the troilet heap.

BEAST, at ombre, is when the player, or person that undertakes the game, loses it to the other two, the penalty of which is a forfeiture equal to the stake played for.

BEAT, *v. n.* BE'ATER, B'EATING. } Sax. *beatan*, *beotan*, Germ. *batten*, French, *battre*, to strike, either with gentleness or violence, with or without an instrumental medium; mechanical or animal motion, rising and falling, or terminating on an object, it is used metaphorically, and applied to almost every kind of regular or repeated motion.

To BEAT DOWN, is to lessen, to depress, to repel, or to conquer.

To BEAT UP, is to attack suddenly; to alarm.

To BEAT IN, is to impress or to inculcate by frequent repetition.

To BEAT-ABOUT. To try different ways; to search; to hunt for any thing.

And oftentimis I finde that thei mette
With blody strokis, and with wordis grete
Assaying how ther speris weren whette,
And God it wote with many a cruel hete
Gan Troilus upon his helme to *bete:*
But nathelesse Fortune it naught ne would
Of eithers honde that either dyen should.
Chaucer. Troilus and Creseide.

And now the westerne winde bloweth sore,
That now is in his chief soveraingntee
Beating the withered leafe from the tree. *Spenser.*

They've chose a consul that will from them take
Their liberties; make them of no more voice
Than dogs, that are often *beat* for barking.
Shakspeare.

Mistress Ford, good heart, is *beaten* black and blue, that you cannot see a white spot about her. *Id.*

Bid them come forth and hear
Or at their chamber door I'll *beat* the drum,
Till it cry, sleep to death. *Id.*

A turn or two I'll walk,
To still my *beating* mind. *Id.*

The tempest in my mind
Doth from my senses take all feeling else,
Save what *beats* there. *Id*

It is strange how long some men will lie in wait to speak, and how many other matters they will *beat* over to come near it. *Bacon.*

We are drawn on into a larger speech, by reason of their so great earnestness, who *beat* more and more upon these last alleged words. *Hooker.*

How frequently and fervently doth the scripture *beat upon* this cause! *Hakewell.*

Beyond this flood a frozen continent
Lies dark and wild, *beat* with perpetual storms
Of whirlwind and dire hail. *Milton.*

They lay in that quiet posture, without making the least impression upon the enemy by *beating up* his quarters, which might easily have been done.
Clarendon.

Tho' oft bound to peace
Yet he never would cease
To vex his poor neighbours with quarrels,
And when he was *beat*
He still made his retreat
To his Clevelands, his hells, and his Carwells.
Marvell.

Some have been *beaten* till they know
What wood a cudgel's of by the blow;
Some kick'd until they can feel whether
A shoe be Spanish or neat's leather.
Butler's Hudibras.

He, with a careless *beat*
Struck out the mute creation at a heat. *Dryden.*

Surveys rich moveables with curious eye,
Beats down the price, and threatens still to buy. *Id.*

My temperate pulse does regularly *beat*;
Feel and be satisfied. *Id.*

When from the cave thou risest with the day
To *beat* the woods, and rouse the bounding prey.
Prior.

I am always *beating about* in my thoughts for something that may turn to the benefit of my dear countrymen. *Addison.*

She persuaded him to trust the renegado with the money he had brought over for their ransom; as not questioning but he would *beat down* the terms of it. *Id.*

Our warriours propagating the French language, at the same time they are *beating down* their power. *Id.*

Such an unlook'd-for storm of ills falls on me,
It *beats down* all my strength. *Id.*

Will fancies he should never have been the man he is, had not he knocked down constables, and *beat up* a lewd woman's quarters, when he he was a young fellow. *Id.*

One sees many hollow spaces worn in the bottoms of the rocks, as they are more or less able to resist the impression of the water that *beats* against them. *Id.*

To find an honest man, I *beat about*,
And love him, court him, praise him, in or out.
Pope.

A man's heart *beats*, and the blood circulates, which it is not in his power, by any thought or volition, to stop. *Locke.*

I would gladly understand the formation of a soul, and see it *beat* the first conscious pulse. *Collier.*

I remember, that once lying a bed, and having been put into a fright, I heard my own heart *beat*, but I took it to be one knocking at the door oftener than once, before I discovered that the sound was in my own heart. *Reid. Enquiry into the Human Mind.*

BEAT, in fencing, denotes a blow or stroke given with the sword. There are two kinds of beats; the first performed by the foible of a man's sword, on the foible of his adversary's, which in the schools is commonly called batterie, from the French battre, and is chiefly used in a pursuit, to make an open upon the adversary. The second, and best kind of beat, is performed with the fort of a man's sword upon the foible of his adversary's, not with a spring, as in binding, but with a jerk or dry beat, and is therefore most proper for the parades without or within the sword, because of the rebound a man's sword

has thereby from his adversary's, whereby he procures to himself the better and surer opportunity of risposting.

BEAT OF DRUM, in the military art, is differently performed, according to the different purposes intended. Notice is given by it of any sudden danger; or, that scattered soldiers may repair to their arms and quarters: these are called beating an alarm, or to arms. It is also intended to signify, according to the different manners of sounding the drum, that the soldiers are to fall on the enemy: to retreat before, during, or after an attack; to move or march from one place to another: to come out of their quarters, to repair to their colors, &c.

BEATS of a watch or clock, are the strokes made by the fangs or pallets of the spindle of the balance, or of the pads in a royal pendulum. To find the beats of the balance in any watch, or in one turn of any wheel:—Having found the number of turns, which the crown wheel makes in one turn of the wheel you seek for; those turns of the crown-wheel, multiplied by its notches, give half the number of beats in that one turn of the wheel: for the balance or swing has two strokes to every tooth of the crown wheel, inasmuch as each of the two pallets has its blow against each tooth of the crown wheel; whence it is, that a pendulum which beats seconds, has in its crown-wheel only thirty teeth. To explain this, suppose the numbers of a sixteen hour watch, wherein the pinion of report is 4, the dial-wheel 32, the great wheel 55, the pinion of the second wheel 5, &c. The number of the notches in the crown-wheel 17, being multiplied into 6336, (the product arising from the continual multiplication of the quotients 8,11,9,8,) gives 107,712, for half the number of beats in one turn of the dial-wheel; for 8 times 17 is 136, which is half the number of beats in one turn of the contrate-wheel 40; and 9 times 136 is 1224, the half beats in one turn of the second wheel; and 11 times 1224 is 13,464, the half-beats in one turn of the great wheel 55; and 8 times 13,464, makes 107,712. Multiply this by the two pallets, i. e. double it, it gives 215,424, which is the number of beats in one turn of the dial wheel, in 12 hours. To know how many beats this watch has in an hour, divide the beats in 12 hours into 12 parts, and it gives 17,952, which is called the train of the watch, or the beats in an hour. If this be divided into 60 parts, it gives 299 and a little more for the beats in a minute, and so you may proceed to seconds or thirds. By the beats and turns of the fusee, the hours that any watch will go may be found, thus: As the beats of the balance in one hour are to the beats in one turn of the fusee, so is the number of the turns of the fusee 1, to the continuance of the watch's going. Thus 20196 : 26028 : : 12 : 16. To find the beats of the balance in one turn of the fusee, say, as the number of turns of the fusee, to the continuance of the watch's going in hours, so are the beats in one hour, to the beats of one turn of the fusee; i. e. 12 : 16 : : 20196 : 26928. To find the beats of the balance in an hour, say, as the hours of the watch's going to the number of turns of the fusee, so are the beats in one turn of the fusee, to the beats of an hour; thus, 16 : 12 : : 26928 : 20196. *Derham's Artificial Clock Maker*, p. 14, &c. and 22. See also CLOCK-MAKING.

4)32(8
5)55(11
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17

To BEAT AN ALARM, in military affairs, is to give notice by beat of drum of some sudden danger.

To BEAT A CHARGE, is to give the signal to fall upon the enemy.

To BEAT THE GENERAL, is to give notice to the forces that they are to march.

To BEAT THE REVEILLE, is to give leave, by beat of drum at day-break, to come out of quarters.

To BEAT THE TATTOO is to give notice to all to retire to their quarters.

To BEAT THE TROOP is to give notice to all to repair to their colors.

To BEAT UPON THE HAND, OR TO CHACK, in the menage, is spoken of a horse, when his head is not steady, but he tosses up his nose and shakes it all of a sudden, to avoid the subjection of the bridle. Turkish horses are very subject to this fault. When they beat upon the hand neither the best bits, nor the best hand, can fix their heads. Croatian horses are also very apt to beat upon the hand; their bars being too sharp and ridged, so that they cannot bear the pressure of the most gentle bit. It is from this excess of sensibility of the mouth that a horse is apt to chack; but in order to secure his head it is only necessary to put a small flat band of iron, beat arch-ways, under his noseband, which answers as a martingale. This will hinder him to beat upon the hand, but will not break him of the habit; for, as soon as the martingale is taken off, he will fall into the same vice again.

BEATA, Lat. i. e. the blessed, one of the many titles given to the Virgin Mary by the Roman Catholics.

BEATER, in manufacturing, is applied to divers sorts of workmen, whose business is to hammer or flatten certain matters, particularly metals. Thus, 1. GOLD-BEATERS are artisans who, by beating gold and silver with a hammer on a marble, in moulds of vellum and bullocks' guts, reduce them to thin leaves, fit for gilding, or silvering of copper, iron, steel, wood &c. Gold-beaters differ from flatters of gold or silver; as the former bring their metal into leaves by the hammer, whereas the latter only flatten it by pressing it through a mill preparatory to beating. 2. TIN-BEATERS are employed in the looking-glass trade, whose business is to beat tin on large blocks of marble, till it be reduced to thin leaves, fit to be applied with quicksilver behind looking-glasses. See FOLIATING and GOLD-BEATING.

BEATH, Ang.-Sax. bethian, bathian, to steep, dip, or bathe. In Suffolk and Norfolk, *beathing* or *bathing* wood by the fire, means straitening unseasoned wood by heat; and this is much the same as Spenser's meaning in the example. To bathe or warm in fire so as to harden.—*Todd's Johnson.*

> And in his hand a tall young oake he bore
> Whose knottie snags were sharpen'd all afore,
> And *beath'd* in fire for steele to be instedd.
>
> *Spenser. Faerie Queene*

BEATI'FICAL, BEATI'FICALLY, BEA'TIFICATION, BEATI'FICK, BE'ATIFY, BEATI'TUDE. From *beatus*, *beatifico*, to be happy; to make happy with the completion of celestial enjoyment. It is used only of heavenly fruition after death. Beatification is an acknowledgment made by the pope, that the person beatified is in heaven, and therefore may be reverenced as blessed; but is not a concession of the honors due to saints, which are conferred by canonisation.

Beatifically to behold the face of God, in the fulness of wisdom, righteousness, and peace, is blessedness no way incident unto the creatures beneath man. *Hakewill.*

If at the conversion of a sinner there is joy before the *beatified* spirits, the angels of God, and that is the consummation of our pardon and our consignation to felicity; then we may imagine how great an evil it is to grieve the spirit of God, who is greater than the angels. *Jeremy Taylor.*

In midst of this city celestial,
Where the eternal temple should have rose,
Lighten'd the idea *beatifical*
End, and beginning, of each thing that grows.
Giles Fletcher.

Admiring the riches of heaven's pavement
Than aught divine or holy else, enjoy'd
In vision *beatifick*. *Milton.*

About him all the sanctities of heav'n
Stood thick as stars, and from his sight received
Beatitude past utterance. *Id.*

It is also their felicity to have no faith; for enjoying the *beatifical* vision in the fruition of the object of faith, they have received the full evacuation of it. *Brown's Vulgar Errours.*

He set out the felicity of his heaven, by the delights of sense; slightly passing over the accomplishment of the soul, and the *beatitude* of that part which earth and visibilities too weakly affect. *Id.*

We shall know him to be the fullest good, the nearest to us, and the most certain; and consequently the most *beatifying* of all others. *Brown.*

We may contemplate upon the greatness and strangeness of the *beatifick* vision; how a created eye should be so fortified, as to bear all those glories that stream from the fountain of uncreated light. *South.*

The obedient, and the men of practice, are those sons of light, that shall outgrow all their doubts and ignorances, that shall ride upon these clouds, and triumph over their present imperfections, till persuasion pass into knowledge, and knowledge advance into assurance, and all come at length to be compleated in the *beatifick* vision, and a full fruition of those joys which God has in reserve for them, whom by his grace he shall prepare for glory. *South's Sermons.*

This is the image and little representation of heaven; it is *beatitude* in picture. *Taylor.*

The use of spiritual conference is unimaginable and unspeakable, especially if free and unrestrained, bearing an image of that conversation which is among angels and *beatified* saints. *Hammond.*

I wish I had the wings of an angel, to have ascended into Paradise, and to have beheld the forms of those *beatified* spirits from which I might have copied my archangel. *Dryden.*

Over against this church stands an hospital erected by a shoemaker, who has been *beatified*, though never sainted. *Addison.*

For you alone his raptures can describe,
And stem the impetuous joys that rise
Within your breasts when all unveil'd you view,
The wonders of the *beatific* sight. *Mrs. Rowe.*

BEATIFICATION, in ecclesiastical affairs, an act by which the pope declares a person beatified, or blessed, after his death. It is the first step towards canonisation, or raising any one to the honor and dignity of a saint. No person can be beatified till fifty years after his or her death. All certificates or attestations of virtues and miracles, the necessary qualifications for saintship, are examined by the congregation of rites. This examination often continues for several years; after which his holiness decrees the beatification. The corpse and relics of the future saint are from thenceforth exposed to the veneration of all good Christians; his image is crowned with rays, and a particular office is set apart for him; but his body and relics are not carried in procession. Indulgences likewise, and remissions of sins, are granted on the day of his beatification; which, though not so pompous as that of canonisation, is however very splendid. Beatification differs from canonisation in this, that the pope does not act as a judge in determining the state of the beatified, but only grants a privilege to certain persons to honor him by a particular religious worship, without incurring the penalty of superstitious worshippers; but in canonisation the pope speaks as a judge, and determines, ex cathedra, upon the state of the canonised. Beatification was introduced when it was thought proper to delay the canonisation of saints, for the greater assurance of the truth of the steps taken in the procedure, Some particular orders of monks have assumed to themselves the power of beatification. Thus Octavia Melchiorica was beatified with extraordinary ceremonies by the Dominicans.

BEATING, in book-binding. See BOOK-BINDING.

BEATING, in English law. See BATTERY.

BEATING, in hunting, a term used of a stag, which runs first one way and then another. He is then said to beat up and down.—The noise made by conies in rutting time is also called beating or tapping.

BEATING, or PULSATION, in medicine, is applied to the reciprocal agitation or palpitation of the heart and pulse, or arteries. Some physicians distinguish eighty-one different kinds of simple beatings, and fifteen compound ones. They compute sixty beats in the space of a minute as the proper number in a temperate man; but, in fact, we generally find a greater number.

BEATING, in navigation, the operation of making a progress at sea against the direction of the wind in a zig-zag line, or traverse, like that in which we ascend a steep hill, See TACKING.

BEATING, in paper-making, signifies the beating of paper on a stone with a heavy hammer, with a large smooth head and a short handle, in order to render it more smooth and uniform, and fit for writing. Engines driven by water are now used.

BEATING FLAX, or HEMP, is an operation in the dressing of these substances, to render them more soft and pliant. When hemp has been

swingled a second time, and the hurds laid by, they take the strikes, and, dividing them into dozens and half-dozens, make them up into large thick rolls, which, being broached on long strikes, are set to dry; after which they lay them in a round trough made for the purpose, and there beat them well with beetles till they handle both without and within as pliant as possible, without any hardness or roughness to be felt: that done, they take them from the trough, open and divide the strikes as before, and, if any be found not sufficiently beaten, they roll them up and beat them over again. Beating hemp is a punishment that was often inflicted on loose or disorderly persons, in houses of correction, before the happy invention of the tread-mill!

Beating, or inflicting stripes, on the person, was one of the most ancient, as well as universal, species of punishment. Among the Romans it obtained, under the denomination of verberatio, fustigatio, flagellatio, pulsatio, &c. In the East it still prevails, under the name of Bastonado, which see.

Beating the Wind was a practice in use in the ancient method of trial by combat. If either of the combatants did not appear in the field, at the time appointed, the other was to beat the wind, or make so many flourishes with his weapon; by which he was entitled to all the advantages of a conqueror. Perhaps St. Paul alludes to this 1 Cor. ix. 26.

Beating Time, in music, a method of measuring and marking the time for performers in concert, by a motion of the hand and foot up or down successively, and in equal times. Knowing the true time of a crotchet, and supposing the measure actually subdivided into four crotchets, and the half measure into two, the hand or foot being up, if we put it down with the very beginning of the first note or crotchet, and then raise it with the third, and then down with the beginning of the next measure; this is called beating the time; and, by practice, a habit is acquired of making the motion very equal. Each motion down and up is called a time or measure. The general rule is, to contrive the division of the measure so, that every down and up of the beating shall end with a particular note, on which greatly depends the distinctness; and, as it were, the sense of the melody. Hence the beginning of every time or beating in the measure is reckoned the accented part of it. Beating time is denoted, in the Italian music, by the term of a battuta, which is usually put after what they call recitativo, where little or no time is observed, to denote that here they are to begin again to mark or beat the time exactly. The Romans aimed at somewhat of harmony in the strokes of their oars; and had an officer called portisculus in each galley, whose business was to beat time with the rowers, sometimes by a pole or mallet, and sometimes only by his voice. The ancients marked the rhythm in their musical compositions; but, to make it more observable in the practice, they beat the measure or time in different manners. The most usual consisted in a motion of the foot, which was raised from, and struck alternately against, the ground, according to the modern method. Doing this was commonly the province of the master of the music, who was thence called *μεσοχορος*, and *κορυφαιος*, because placed in the middle of the choir of musicians, and in an elevated situation, to be seen and heard more easily by the whole company. These beaters of measure were also called by the Greeks *ποδοκτυποι*, and *ποδοψιφοι*, because of the noise of their feet; and *συντοναριοι*, because of the uniformity or monotony of the rhythm. The Latins denominated them podarii, pedarii and pedicularii. To make the beats or strokes more audible, their feet were generally shod with a sort of sandals, either of wood or iron, called by the Greeks *κρουπεζια*, *κρουπαλα*, *κρεμπηται*, and by the Latins pedicula, scabella, or scabilla, because resembling little stools or foot-stools. Sometimes they beat upon sonorous foot-stools, with the foot shod with a wooden or iron sole. They beat the measure not only with the foot, but also with the right hand, all the fingers of which they joined together, to strike into the hollow of the left. He who thus marked the rhythm, was called manuductor. The ancients also beat time with shells, as oyster shells and bones of animals, which they struck against one another, much as the moderns now use castanets, and the like instruments. This the Greeks called *κρημβαλιαζειν*, as is noted by Hesychius. The scholiast on Aristophanes speaks much to the same purpose. Other noisy instruments, as drums, cymbals, citterns, &c., were also used on the same occasion. They beat the measure generally in two equal or unequal times; at least, this holds of the usual rhythm of a piece of music, marked either by the noise of sandals, or the slapping of the hands. But the other rhythmic instruments last-mentioned, and which were used principally to excite and animate the dancers, marked the cadence after another manner; that is, the number of their percussions equalled, or even sometimes surpassed, that of the different sounds which composed the air or song played.

Beatitude, in divinity, denotes the fruition of God in a future life to all eternity. Beatitude is also used in speaking of the theses contained in Christ's sermon on the mount, whereby he pronounces the poor in spirit, those that mourn, the meek, &c., blessed.

Beatitude, in ecclesiastical affairs, was a title anciently given to all bishops; but of latter days has been restrained to the pope. It appears to have been sometimes also given to laymen.

BEATON (David), archbishop of St. Andrew's, and a cardinal of Rome, in the early part of the sixteenth century, was born in 1494. Pope Paul III. raised him to the degree of a cardinal in December 1538; and being employed by James V. in negociating his marriage with the court of France, he was there consecrated bishop of Mirepoix. Soon after his instalment as archbishop of St. Andrew's, he promoted a furious persecution of the reformers in Scotland; but the king's death put a stop, for a time, to his arbitrary proceedings, he being then excluded from affairs of government, and confined. He raised, however, so strong a party, that, upon the coronation of the young queen Mary, he was admitted in the council, made chancellor, and procured a commission as legate à latere from the court of Rome.

He now began to renew his persecution of heretics: and, among the rest, of the famous protestant preacher George Wishart, whose sufferings at the stake he viewed from his window with apparent exultation. It is said, that Wishart, at his death, foretold the murder of Beaton, which indeed happened shortly after, he being assassinated in his chamber, May 29th, 1547. Beaton had great talents, and vices that were no less conspicuous.

BEATON (James), a nephew of the archbishop, was born at Balfour, in 1530, and raised to the archbishopric of Glasgow, when about twenty-five years of age. In 1560 he collected the sacred vessels and records belonging to his cathedral, and embarked for France, where he died in 1603. He wrote a history of Scotland, but it was never printed.

BEATORUM INSULA, in ancient geography, was seven days journey west of Thebæ, a district of the Nomos Oasites, and called an island, because surrounded with sand, like an island with water; yet abounding in all the necessaries of life. Some suppose it to have been a third Oasis, in the Regio Ammoniaca; and the site of the temple of Ammon answers to the above description, as appears from the writers on Alexander's expedition thither. Ulpian says, it was a place of banishment for criminals from which there was no escape.

BEATSON (Robert), an ingenious and extensive compiler of books, was born in 1742 at Dysart, in the county of Fife. At the age of fourteen he entered into the army, but rising no higher than to the rank of lieutenant, turned his attention to literature as a profession, and in 1786 published A Political Index to the Histories of Great Britain and Ireland, of which there have been three editions. In 1790 appeared his Naval and Military Memoirs of Great Britain, in 3 vols. 8vo., to which he subsequently added three more; and in 1807 a Chronological Register of both Houses of Parliament from the Union. He obtained the degree of doctor of laws from the university of Edinburgh, and was a member of the Royal Society of Scotland. He died in 1818. He was also the author of an Essay on vertical and horizontal Windmills.

BEATTIE (James), LL. D., professor of moral philosophy and logic in the Marischal college, Aberdeen, was born in Kincardineshire, in 1735. His father, who kept a small shop in Laurencekirk, and rented a farm in the neighbourhood, gave him all the education which could be obtained at the parish school, and afterwards sent him to the university of Aberdeen. There he pursued his studies with great diligence, and was soon preferred to a bursary. Having continued four years at the university, studying philosophy and divinity, with a view to the established church, and no prospect opening for him, he accepted in 1753, of the office of schoolmaster and parish clerk in the parish of Fordun. Here he continued four years, little known or noticed In 1758 he was appointed one of the ushers to the grammar school of Aberdeen, and soon after gained attention among the men of letters in the university. In 1760 he published a small volume of original poems and translations, and the same year was appointed professor of philosophy; the duties of which situation he continued to discharge till within a short time of his death. Aberdeen could at this period boast of Drs. Campbell, Gerard, Gregory, and Reid, among its professors; and the benefits which their new associate must have derived from such company, were rendered still more invaluable, by the harmony in which they lived with each other, and the familiar manner in which they communicated their sentiments. In a kind of literary club, which met twice a month, they discussed freely all the topics of literature and philosophy which occurred to any of them; and it was in this society that those speculations took their rise, which have since made their names so familiar to all who read for instruction. In 1763 Mr. Beattie visited London, and in 1765 published his Judgment of Paris; this year also, he became acquainted with the poet Gray, and continued in close friendship with him while he lived. In 1767 he married a daughter of Dr. Dun, master of the grammar school; and about this time seems to have begun his Minstrel, and his Essay on the Nature and Immutability of Truth; the latter of which was published in 1770. It was designed particularly to oppose the philosophy of Hume, who is said to have been so sensible of the strength of its arguments and popularity, that he never afterwards could hear the name of Beattie mentioned without displeasure. In 1771 appeared the first canto of that beautiful poem, The Minstrel, which was completed in 1774, and in a very short time ran through several editions. In a second journey to London, he was introduced by his friend Dr. Gregory to Mrs. Montagu, and to all the distinguished literary society then in the metropolis. He visited London a third time in 1773, and associated for some months with Drs. Johnson, Porteus, and other eminent men. About this time he received an honorary degree of LLD. from Oxford; and obtained a pension from the king of £200 per annum. He had also the honor of an interview with their majesties. This year there was a proposal for transferring Dr. Beattie to the university of Edinburgh, but he declined it; and in 1774 two offers were made him in the church of England, one of them a living of £500 a year, with views of further preferment; but these he also declined. Dr. Priestley at this time made an attack upon him, of which, however, he took no notice. In 1776 he published a volume of Essays; and in 1783, Dissertations Moral and Critical, in one volume 4to, At the recommendation of the bishop of London, in 1786, he published two small volumes on the Evidences of the Christian Religion; and in 1790 the Elements of Moral Science, being the outlines of his academical lectures. Dr. Beattie was very much tried by domestic affliction: his wife became the victim of hereditary insanity, and his two sons, James Hay and Montagu, died successively, after attaining to manhood. The situation of his wife, and the precarious state of his own health, had sunk him into an habitual depression; but the death of his eldest son James, who had been conjoined with him in the professorship, was so severe a shock to him that he never recovered from it. But the sudden death of his only remaining child

in 1796, completely unhinged his mind; the first symptom of which was a temporary, but almost total loss of memory, respecting his son. At this time, after searching in every room in the house, he would say to his niece, Mrs. Glennie, 'You may think it strange, but I must ask you if I have a son, and where he is?' She then felt herself,' says Sir William Forbes, 'under the painful necessity of bringing to his recollection his son Montagu's sufferings, which always restored him to reason. And he would often, with many tears, express his thankfulness that he had no child, saying, 'How could I have borne to see their elegant minds mangled with madness!' When he looked for the last time on the dead body of his son, he said, 'I have now done with the world.' His last publication was An Account of the Life, Character, and Writings of James Hay Beattie. His spirits from this period were never restored, and his health continued gradually to decline, till, in 1799, he was struck with palsy; and, after being reduced to a state of permanent insensibility, this excellent man, all of whose labors tended to enlighten and benefit mankind, expired in June, 1803.

BEAU', BEAU'ISH, BEAU'SHIP. } From the Fr. *beau*, good, gay, fine. The plural *beaux* is now Anglicised. A *beau* is a man of dress, whose great care is to deck his person. Vulgarly employed to designate a lover, who of course must be a smart fellow. A *beau* was the dandy of the last age, as a dandy is the fop of the present.

What will not *beaux* attempt to please the fair.
Dryden.

The water nymphs are too unkind
To Vill'roy; are the land nymphs so?
And fly they all, at once combin'd
To shame a general, and a *beau?* *Prior.*

You will become the delight of nine ladies in ten, and the envy of ninety-nine *beaux* in a hundred.
Swift.

A youth more glitt'ring than a birth-night *beau*,
That even in slumber caus'd her cheek to glow.
Pope. Rape of the Lock.

With varying vanities from ev'ry part,
They shift the moving toy-shop of their heart,
Where wigs with wigs, with sword-knots sword-knots strive,
Beaux banish *beaux*, and coaches coaches drive.
This erring mortals levity may call,
Oh blind to truth! the sylphs contrive it all. *Id.*

Just at that time of life, when man by rule,
The fop laid down, takes up the graver fool,
He started up a fop, and fond of show
Look'd like another Hercules turn'd *beau*.
Churchill.

BEAU (Charles le), a learned French author, born at Paris in 1701. He became professor in the Royal College, and secretary of the Academy of Inscriptions. He wrote a history of the Lower Empire, in 22 vols. which is much esteemed; also Opera Latinæ, published at Paris five years after his death, in 3 vols. 12mo. He died at Paris in 1778.

BEAU (John Lewis le), brother of Charles, was also a man of considerable learning. He was born at Paris in 1721, and became professor of rhetoric in the college of the Grassins, and member of the academy of inscriptions. In 1746 he published an edition of Homer in Greek and Latin, 2 vols: and in 1750, the Orations of Cicero, 3 vols.: also a Discourse on the Poverty of the Learned. He died in 1766.

BEAUBASSIN, a bay in the straits of Magellan, on the coast of Terra del Fuego, so named by Bougainville. According to his account, there is good anchorage in it from forty to twelve fathoms; the bottom of sand, small gravel, and shells. Long. 71° 13′ W., lat. 54° 22′ S.

BEAUCAIRE, a town of France, in the department of the Gard and ci-devant province of Languedoc, on the Rhone, opposite to Tarascon, with which it has a communication by a bridge of boats. The fair of the Magdalen, which is held July 22, partly in the town, and partly under tents in an adjacent valley, for seven days, is one of the most famous in Europe, though of late it has declined. Beaucaire is ten miles east of Nismes. The canal of Aigues Mortes now extends to this town, where it communicates with the Rhone. On the Rhone, opposite Tarascon, are the picturesque ruins of an old castle. Its population is stated to be 8500. Long. 4° 39′ E., lat. 43° 50′ N.

BEAUCE, one of the former provinces of France, famous for its fertility in grain. It was situated between Perche, the Isle of France, the Blasois, and the Orleanais, Chartres was its capital. Beauce now forms a part of the department of the Eure and Loir.

BEAUCLERC, PORT, a good harbour in an island in the North Pacific, on the west coast of North America. Long. 226° 23′ E., lat. 56° 17′ N.

BEAUCLERK (Topham), a gentleman of whom Dr. Johnson said, referring to his conversational power and facility of expression, that his talents were those which he had felt himself most disposed to envy than those of any whom he had known. He was the son of lord Sidney Beauclerk, and was born in December 1739. In 1768 he married lady Diana Spencer, daughter of the duke of Marlborough, whose previous marriage with viscount Bolingbroke had two days before been dissolved by act of parliament. Mr. Beauclerk died at his house in Great Russell Street, Bloomsbury, March 11, 1780, leaving by his wife a son and two daughters, and a very valuable library. Lady Diana Beauclerk long survived him, and died in August 1808, at the age of seventy-four. She was a lady distinguished for her taste and skill in the arts.

BEAVER. Sax. *befer*, Dut. *bever*, Germ. *biber*, Fr. *bievre*, Lat. *fiba*. An animal, otherwise named the *castor*, amphibious, and remarkable for his art in building his habitation; of which many wonderful accounts are delivered by travellers. His skin is very valuable on account of the fur. Of this fur, hats of the best quality are manufactured, and therefore called *beavers*.

Highe on hors he sat,
And on his hed a Flaundrish *bever* hat.
Chaucer.

Then unto him all monstrous beasts resorted,
Bred of two kindes; as griffons, minotaurs,
Crocodiles, dragons *beavers*, and Centaures.
Spenser. Mother Hubberd's Tale

Ha! you felt the wool of *beaver?*
Or swans' down ever?
Or have smelt o' the bud o' the briar,
Or the nard in the fire,
Or have tasted the bag of the bee;
Oh, so white! Oh, so soft! Oh so sweet is she!
Ben Jonson.

They placed this invention upon the *beaver*, for the sagacity and wisdom of that animal; indeed from its artifice in building. *Browne's Vulgar Errours.*

You see a smart rhetorician turning his hat, moulding it into different cocks, examining the lining and the button during his harangue: a deaf man would think he was cheapening a *beaver*, when he is talking of the fate of a nation. *Addison.*

The broker here his spacious *beaver* wears,
Upon his brow sit jealousies and cares. *Gay.*

BEAVER, BEAVERED. From *baviere*, French; *baviere*, says Cotgrave, is the *bib*, mocket, or mocketer, to put before the bosom of a slavering child; so that baviere or beaver, is, according to the Ency. Met., that part of the helmet which lets down to enable the wearer to drink, and which receives the drops or dribblings; by Shakspeare and others, however, as the editor admits, it is quite oppositely applied.

His dreadful hideous head,
Close couched on the *beaver*, seem'd to throw
From flaming mouth bright sparkles fiery red.
Spenser.

Big Mars seems bankrupt in their beggar'd host,
And faintly through a rusty *beaver* peeps. *Shakspeare.*

I saw young Harry,—with his *beaver* on,
His cuisses on his thighs, gallantly arm'd,—
Rise from the ground like feather'd Mercury,
And vaulted with such ease into his seat,
As if an angel dropp'd down from the clouds,
To turn and wind a fiery Pegasus,
And witch the world with noble horsemanship. *Id.*

He was slain upon a course at tilt, the splinters of his staff going in at his *beaver*. *Bacon.*

His *beaver'd* brow a birchen garland bears,
Dropping with infant's blood, and mother's tears.
Pope.

BEAVER, in zoology. See CASTOR.

BEAVER SKINS are a prodigious article of trade, being the foundation of the hat manufactory. In 1763 were sold, in a single sale of the Hudson's Bay Company, 54,670 skins. They vary in their colors; the finest are black, but the general color is a chestnut brown, more or less dark: some have been found, but very rarely, white. They are distinguished by the names of coat beaver, which is what has been worn as coverlets by the Indians: parchment beaver, because the lower side resembles it; and stage beaver, which is the worst, and is that which the Indians kill out of season, on their stages or journeys. Besides hats and furs, in which the beaver's hair is commonly used, they attempted in France, in 1699, to make cloths, flannels, stockings, &c. partly of beaver's hair, and partly of Segovia wool. This manufactory, which was set up at Paris, in St. Anthony's suburbs, succeeded at first pretty well; and, according to the genius of the French, the novelty of the thing brought into some repute the stuffs, stockings, gloves, and cloth, made of beaver's hair. But they were found of very bad wear, and the colors quickly faded: when they had been wet, they became dry and hard, like felt. When the hair has been cut off from the skins, to be used in the manufacture of hats, the skins are employed by trunk-makers, to cover trunks and boxes; by shoe-makers; and by turners, to make sieves, &c. Merchants distinguish beaver skins into,

1. BEAVER, DRY, which is sometimes called lean beaver, and which comes from the summer hunting at the time when these animals lose part of their hair. Though this is inferior to the new beaver, yet it may also be employed in furs; but it is chiefly used in the manufacture of hats. The French call it summer castor or beaver.

2. BEAVER, FAT, is that which has contracted a certain gross and oily humor, from the perspiration which exhales from the bodies of the savages, who wear it for some time. Though this is a better kind than the dry beaver, yet it is used only in the making hats.

3. BEAVER, NEW, or WHITE BEAVER, also called Muscovy beaver, because it is commonly kept to be sent into Russia, is that which the savages catch in their winter hunting. It is the best, and the most proper for making fine furs, because it has lost none of its hair by shedding.

BEAVER CREEK, a river of North America, which falls into lake Erie at its east end, about seven miles south-east from Fort Erie. 2. A river of North America, which falls into the Allegany. Twenty-eight miles north-west from Pittsburg. 3. A river of Kentucky, which runs into the Cumberland. 4. A river of Georgia, which runs into the Tennessee.

BEAVER ISLANDS, are a remarkable chain of small islands in lake Michigan, extending about thirty miles south-west. They appear beautiful, but the soil is barren.

BEAVER KILL, a river of North America, which falls into the Popachton branch of the Delaware.

BEAVER LAKE, in North America, lies in about 52° 45′ N. lat., and 101° 30′ W. long.

BEAVER RIVER, so called from the multitude of beavers which frequent its banks, a river of North America, which rises on the eastern side of the rocky mountains, and falls into the Yellowstone from the north.

Also a river of North America, which rises in the ridge of mountains that divides the waters which discharge themselves into Hudson's bay, from those which flow towards the Northern Ocean. It falls into Lake la Crosse, in about 56° N. lat. and 108° W. long.

BEAVER'S TOWN, a town of the United States of America, in the western territory, built in 1764. Eighty-five miles north-west of Pittsburg.

BEAUFORT a sea-port of the United States, in Carteret, North Carolina county, North America. Fifty-five miles south by east of Newburn. Long. 77° W., lat. 34° 47′ N.

BEAUFORT, a town of the United States, in South Carolina, situated on the island of Port Royal, at the mouth of Coosawhatchie river. It has an excellent harbour, and is seventy-three miles from Charlestown. Long. 80° 55′ W., lat. 82° 26′ N.

BEAUFORT EN VALLEE, a town of France, in

the department of the Maine and Loire, late province of Anjou, with a castle. It contains two parishes, and formerly had a convent of Recolets. Beaufort gives the title of a Duke in England to the noble family of Somerset, who are lineally descended from John of Gaunt, duke of Lancaster, whose duchess resided here. It contains 800 houses, 6000 inhabitants, and carries on an active trade in grain, wine, and hemp, with manufactures of linen and woollen stuffs, and hats. The village of Beaufort en Franchise, or Beaufort hors la Ville, is separated from this town by an arm of the river Coesnon. Fifteen miles east of Angers, and thirty-eight west of Tours.

BEAUFORT DISTRICT, a county of South Carolina, which lies on the sea-coast, between Combahee and Savannah rivers.

BEAUFORT (Henry), brother of Henry IV. king of England, was made bishop of Lincoln, whence he was translated to Winchester. He was also nominated chancellor of the kingdom, and sent ambassador to France. In 1426 he received a cardinal's hat, and was appointed legate in Germany. In 1431 he crowned Henry VI. in the great church of Paris. He died at Winchester in 1447. He was a haughty, turbulent prelate, and Shakspeare is considered as giving a true portrait of him, when he describes his last scene.

BEAUFORT (Margaret), the foundress of Christ's and St. John's colleges in Cambridge; the only daughter and heir of John Beaufort, duke of Somerset, and of Margaret Beauchamp, was born in 1441. She married in 1456 Edmund, earl of Richmond, by whom she had king Henry VII. and died in 1509, after having had two other husbands, namely, Sir Henry Stafford, and Thomas, lord Stanley, earl of Derby. By her marriage, according to bishop Fisher, with the earl of Richmond, and by her birth, she was allied to thirty kings and queens, within the fourth degree of either blood or affinity. Besides the foundation of the two colleges at Cambridge, before-mentioned, she left salaries for two divinity lecturers, one at Oxford, and the other at Cambridge; as also for a grammar-school at Wimborn, and other foundations in support of learning, of which she was not altogether deficient herself, as appears from some of her works, namely, 1. The Mirroure of Gold for the Sinful Soul; translated from the French version of a book entitled, Speculum Aureum Peccatorum. 2. A translation of the fourth book of Gerson's treatise, entitled, Of the Imitation and Following the Blessed Life of our Most Merciful Saviour Jesus Christ; printed at the end of Dr. Atkinson's English translation of the three first books, 1504. 3. A Letter to her Son, printed in Howard's Collection of Letters. She was also possessed of extraordinary zeal in religion, and declared that provided she could induce the princes of Christendom to form a league, and march against the infidels, she would willingly attend them as their laundress.

BEAUFORT (Lewis de), a celebrated writer of the eighteenth century. He distinguished himself in the literary world by several valuable works, and was chosen fellow of the Royal Society of London. He wrote the History of Germanicus; Dissertation upon the Uncertainty of the five first Ages of the Roman Republic; History of the Roman Republic, or Plan of the Ancient Government of Rome. He died at Maestricht in 1795.

BEAUFORTIA, in botany, a genus of plants of the class polyadelphia, and order icosandria. Its generic characters are five groups of STAM. opposite to the petals: ANTHER. inserted into the base; bifid at the apex, lobes deciduous: CAPS. trilocular one-seeded, connate, included in the thickened tube of the calyx adnate at the base. It contains two species, natives of New Holland.

BEAUFRONT, a small town of Northumberland, on the Tyne.

BEAUGENCY, a town of France, in the department of the Loiret, and arrondissement of Orleans, seated on the Loire. Long. 1° 46′ E., lat. 47° 48′ N. It had formerly the title of county, has 4900 inhabitants, and is the head of a canton. It has a considerable trade in wine and brandy; a few cloth stuffs are also manufactured, and there are several tanneries. Over the Loire is a stone bridge. Fifteen miles south-west of Orleans, and eighteen north-east of Blois.

BEAUHARNOIS (Alexander de), a French nobleman, who perished during the revolution, and who was the first husband of the late empress Josephine of France. He was born at Martinique, and going early in life to Paris, was elected deputy of Blois in the Constituent Assembly, in which he joined the popular party. He proposed equality of punishments for all classes of citizens, and their eligibility to all offices. After the attempted flight of Louis XVI. Beauharnois was appointed adjutant-general to Luckner, general-in-chief of the army of the Moselle, in which post he gave many proofs both of his courage and humanity. He was offered the place of minister of war, which he refused. Five days previous to the fall of Robespierre, he was condemned by the revolutionary tribunal, and perished on the scaffold, July 23d, 1794.

BEAUHARNOIS (Eugene de), only son of the preceding, and viceroy of Italy under Napoleon, was intimately connected throughout life with his father-in-law. He is said to have governed Italy with great judgment and moderation, so as to conciliate the respect and esteem of the inhabitants in general. In the Russian campaign he commanded the Italian troops of the grand army. Napoleon's downfall in 1814 terminated Beauharnois's prosperity. In January, 1806, he married the princess Augusta Amelia, eldest daughter of the king of Bavaria, to whose court at Munich he retired on the restoration of Louis XVIII. and died there in 1824.

BEAULIEU, a village of Hampshire, four miles south-west of Southampton, in which are the remains of a Cistercian abbey, founded by king John in 1204. Its walls afforded an asylum to Margaret, the queen of Henry VI. after the battle of Barnet. The celebrated Perkin Warbeck was protected here in later times, when their sanctity was so far respected, that though surrounded by an armed force, he was not seized, but voluntarily surrendered himself.

BEAULIEU, a small town of France, on the

ight bank of the Indre, in the government of Touraine. It had formerly the title of barony; ince the revolution it has been included in the lepartment of the Indre and Loire. It has 1500 nhabitants, and a few manufactures of linen and roollen stuffs and hats. Nineteen miles S.S.W. f Tours.

BEAULIEU (Sebastian de Pontault de), a celerated French engineer, and major-general under Louis XIV. He published plans of all the battles nd sieges of his master, to which he added hisorical subjects in perspective. He died in 1674.

BEAUMARCHAIS (Peter Augustin Caron le), an ingenious French artist and dramatic writer, was born at Paris in 1732. His father was a clock-maker, and early in life he applied himself with great diligence to that occupation. He invented a new escapement, the honor of which was contested by another artist, but the Academy of Sciences determined it in favor of young Beaumarchais. He also distinguished himself by his skill in music, and particularly in playing on the harp; which recommended him o the notice of the sisters of Louis XV. who enouraged him to attend their concerts and private arties. In three different great legal causes in which he was engaged, he displayed his literary alents so advantageously, as obtained for him a onsiderable post under the government. He wrote, 1. Memoires contre les Sieurs de Goetzman, &c. 2. Memoire en reponse a celui de G. Cornmann. 3. Eugenie, a drama. 4. Les deux Amis. 5. Le Barbier de Seville. 6. Le Marriage de Figaro. 7. Tarare, an opera. 8. La Mére Coupable. 9. Memoire en Reponse au Manifeste du roi d'Angleterre. 10. Memoires a Lecointre de Versailles. At the commencement of the revolution he retired to Holland, from whence he came to England, and was proscribed by the convention, yet he ventured to return to his country, where he died in 1799. The first appearance of Le Mariage de Figaro, at the beginning of the revolution, gave rise to a singular trial of strength between the court and the popular party. See ANTOINETTE.

BEAUMARIS, or BEAUMARSH, Fr. Beaumarais, the county town of Anglesey in North Wales, seated on a bay, which affords good anchorage, and is frequently a refuge for ships in storms; having seven fathoms water at the lowest ebb. It is neat and well built, and has one very handsome street. Edward I. to overawe the Welsh, built a fortress here in 1295, and fixed on a marshy spot, near the chapel of St. Deugan, that he might have an opportunity of forming a foss round the castle, and of filling it with water from the sea. He also cut a canal, to permit vessels to discharge their lading beneath the walls. Within the last century iron rings were affixed to them, for the purpose of mooring ships or boats. The marsh was in early times of far greater extent than at present, and covered with fine bulrushes. The first governor was Sir William Pickmore, a Gascon knight. The constable of the castle was formerly captain of the town. It was garrisoned for Charles I. in the civil wars, but captured by an overwhelming parliamentary force. This castle is in ruins, and the present government of Beaumaris is vested in a mayor, recorder, two bailiffs, and twenty-four burgesses, two sergeants at mace, a town clerk, four constables, and a water bailiff: the corporation only electing the member of parliament returned by this place. Here is a handsome church, containing some noble monuments: a commodious and elegant town-hall, having shambles under it, with iron gates and railings, and a secure prison. In the hall the corporation business is transacted, and the assemblies are held. It has been rebuilt by viscount Bulkeley. The grammar-school and alms-houses are also respectable establishments. The ferry, which is near the town, is passable at low water. The markets on Wednesday and Saturday are well supplied with all kinds of provision. It is a chapelry, called the chapel of the Blessed Virgin, to the parish of Llandegvan. 251 miles, by Aberconway, from London, and fifty-nine west by north from Chester; and contains upwards of 2000 inhabitants. It is near Beaumaris, over the Bangor ferry, that the noble suspension bridge of Mr. Telford has been recently erected. The span of the principal arch is 580 feet, and it is 100 feet above the surface of the sea at high water, which will allow the largest vessels that pass the strait to sail beneath it. At Plasnewydd, about one mile on the right, is the elegant mansion of the marquis of Anglesey.

BEAUMELLE (Laurence), a French author, born at Vallerangue, in Lower Languedoc, in 1727. He was a man of considerable abilities, and went to Denmark, where he settled for some time as professor of belles lettres. He wrote a Defence of the Spirit of Laws; Letters to Voltaire; Thoughts of Seneca; a Commentary upon the Henriade; a Life of Mad. Maintenon, &c. but was twice confined in the Bastile for libels and satires. The king, however, appointed him his librarian in 1772. He died at Paris in 1773.

BEAUMONT (Francis), a celebrated dramatic writer, who flourished in the reign of James I. was descended from an ancient family of his name at Grace-Dieu, in Leicestershire, where he was born about 1585 or 1586, in the reign of queen Elizabeth. His grandfather, John Beaumont, was master of the rolls, and his father, Francis, one of the judges of the common pleas. He was educated at Cambridge, and afterwards admitted of the inner temple. It does not, however, appear, that he had made any great proficiency in the law. Out of fifty-three plays, which are collected together as the joint labors of Beaumont and Fletcher, (for an account of their celebrated joint works, see FLETCHER), Mr. Beaumont was concerned in the greater part, yet he did not live to complete his thirtieth year, death summoning him away in the beginning of March, 1615. He was interred in the entrance of St. Benedict's chapel, Westminster abbey. He left a daughter, Frances Beaumont, who died in Leicestershire, and who, having in her possession several poems of her father's, lost them at sea in a voyage from Ireland.

BEAUMONT (Sir John), the elder brother of Francis the poet, was born in 1582, and educated at Oxford, whence he removed to one of the inns of court. In 1626 he had the dignity of a baronet conferred on him by king Charles I. He wrote, The Crown of Thorns, a

poem, in eight books; Bosworth Field, and other poems; Translations from the Latin Poets; and several poems on religious and political subjects: as, on the Festivals; on the Blessed Trinity; a Dialogue between the World, a Pilgrim, and Virtue; Of the miserable State of Man; Of Sickness, &c. He died in 1628. His poetic genius was celebrated by Ben Jonson and Michael Drayton.

Beaumont (Mad. le Prince de), a literary lady, a native of Rouen, in Normandy, who kept a boarding school for young ladies at London, and afterwards at Annecy, in Savoy, where she died in 1780. Her publications are, Magazin des Enfans; Magazin des Adolescens; Magazin des Jeunes Dames; Nouveau Magazin Anglois; Lettres de Madame du Montier; and The New Clarissa.

Beaumont (Elie d'), a French advocate, born at Carentan in 1732. He distinguished himself by his interesting memoir in favor of the unfortunate family of Calas, the effect of which upon the nation was very great. Besides this, he wrote several other pieces of considerable merit. He died in 1785. The much admired novel, entitled, Letters of the Marquis de Roselle, was written by his wife, who died in 1783.

Beaumont de Lomagne, a town of France, in Gascony, with 3700 inhabitants; the head of a canton, situated in the department of the Tarn and Garonne. Here are manufactures of coarse cloths, hats, and leather. It stands on the small river Gimone, twenty-eight miles north-west of Toulouse.

Beaumont le Vicomte, a town of France, in the province of Maine, and department of the Sarthe. It contains 2400 inhabitants, with manufactures of woollen stuffs, and lies on the river Sarthe, fifteen miles north of Le Mans, and fifteen south of Alençon.

Beaumont sur Oise, a small town of France, with 2150 inhabitants. It is situated in the department of the Seine and Oise, on the river Oise, twenty miles north of Paris.

Beaumont sur Vingeanne, a town of France, in Burgundy, department of the Cote d'Or, ten miles west of Gray, and thirteen north-east of Dijon.

BEAUNE, or Beaulne, a town of France, in Burgundy, included since the revolution in the department of the Cote d'Or; the head of an arrondissement of nine cantons. It is tolerably well fortified, and has a castle, with five suburbs. The only public establishment deserving mention is the hospital, founded in 1443, by the chancellor Rollin. In former times it was the third town in Burgundy, the seat of a governor, and other functionaries, and the capital of the district called from it the Beaunois. The town is particularly celebrated for its wines, and lies in an agreeable country, on the right bank of the Bouzeoise, not far from the Saone. Twenty miles S.S.W. of Dijon, and twenty-three north-east of Autun. Inhabitants about 10,200.

Beaune (James de), baron of Samblançai, an unfortunate financier under Francis I. While that monarch was contending about the Milanese, Beaune had settled matters for sending 300,000 crowns to Lautrec, the commander, for paying the troops; but the queen mother demanded the money for herself, threatening to ruin the superintendant if he did not satisfy her demand, and thus obtained it. In consequence of the army not receiving the promised supply, they failed in their design, and laid the blame upon Samblançai, against whom they complained to the king. The baron endeavoured to justify himself, by laying before the king the real cause; but the queen mother bribed his secretary to deliver to her the receipts she had granted to him, by which means he was deprived of the only evidence for substantiating his innocence; he was accordingly accused of having made use of the money himself, and was executed in 1527. He met his fate with the utmost intrepidity; and his courage is commemorated in a beautiful epigram by the poet Marot.

BEAU-PLEADER, or Bew-pleader, a writ on the statute of Marlbridge, whereby it is provided that no fine shall be taken of any man in any court for fair pleading, i. e. for not pleading aptly, and to the purpose.

BEAURAIN (John de), geographer to Lewis XV. was born at Aix in 1697. Besides constructing a number of charts, he published a topographical and military description of the campaigns of Luxemburg, from 1690 to 1694. three volumes, folio. He died in 1771.

BEAUREGARD L'Eveque, a town of France, in the department of the Puy-de-Dome, has an elegant castle, which, before the revolution, belonged to the bishop of Clermont. The memory of the celebrated Masillon is still cherished here by the inhabitants. Beauregard is not far from the Allier. Nine miles east of Clermont-Ferrand.

BEAURIEU (Gaspard-Guillard de), an ingenious French philosopher, born in the county of Artois in 1727. His most celebrated work was the Pupil of Nature, two volumes. He fell a sacrifice to the revolutionary storms, being left to perish in an hospital in 1795.

BEAUSOBRE (Isaac de), a very learned French Protestant writer, was born at Niort in 1659. He was forced into Holland to avoid the execution of a sentence, which condemned him to make the amende honorable, for having broken the royal signet, which was put upon the door of a church of the reformed, to prevent the public profession of their religion. He went to Berlin in 1694; was made chaplain to the king of Prussia, and counsellor of the royal consistory. He died in 1738, aged seventy-nine, after having published, 1. Defense de la Doctrine des Reformés. 2. A Translation of the New Testament and Notes, jointly with M. Lenfant. 3. Dissertation sur les Adamites de Boheme. 4. Histoire Critique de Manichees, et du Manicheisme, two vols. quarto. 5. Several dissertations in the Bibliotheque Britannique, &c. M. Beausobre had strong sense, with profound erudition; he preached as he wrote, with warmth and spirit.

Beausobre (Lewis), counsellor to the king of Prussia, was born at Berlin in 1730. He wrote Philosophical Dissertations on the Nature of Fire. Le Pyrrhonisme du Sage; and Les Songes d'Epicure. He died in 1783.

BEAU'TY, *v.* & *n.*
BEAUTE'OUS,
BEAUTE'OUSLY,
BEAUTEOUS'NESS,
BEAUTI'FIER,
BEAUTI'FUL,
BEAUTI'FULLY,
BEAUTIFUL'NESS,
BEAUTI'FY,
BEAUTIFY'ING,
BEAUTI'LESS,
BEAUTY'WARNING,

Beauté, French; from the ancient Latin, *benus*, i. e. *bonus*; fair; good; lovely. It is applied to external objects; to whatever imparts pleasure, and comes under the cognizance of the senses; there is also an ideal world of beauty; the various qualities of the human mind and character, and the productions of the intellect which have a relation to taste; beauty of scenery; beauty of person; beauty of description, of thoughts, of words, of actions.

But, for to spekin of her eyin clere!
Lo! truily thei writtin that hire seien,
That Paradis stode formed in hire eien;
And with hire richè *beaute* evirmore
Strove love in hire aie which of hem was more.
Chaucer. Troilus and Creseide.

Faire Marian, the muses onely darling:
Whose *beautie* shyneth as the morning cleare,
With silver dew upon the roses pearling. *Spenser.*

'Tis *beauty* truly blent, whose red and white
Nature's own sweet and cunning hand laid on.
Shakspeare.

Beauty and grace are like those beams and shinings that come from the glorious and divine sun, which are diverse, as they proceed from the diverse objects, to please and affect our several senses; 'as the species of *beauty* are taken at our eyes, ears, or conceived in our inner soul,' as Plato disputes at large in his Dialogue de Pulchro, Phaedos, Hyppias; and, after many sophistical errors are confuted, concludes that *beauty* is a grace in all things, delighting the eyes, ears, and soul itself; so that, as Valesius infers, hence whatsoever pleaseth our ears, eyes, and soul, must needs be *beautifull*, fair, and delightsome to us.
Burton. Anat. Mel.

His hair (which the young men of Greece used to wear very long) was stirred up and down with the wind, which seemed to have a sport to play with it as the sea had to kiss his feet; himself full of admirable *beauty*, set forth by the strangeness both of his seat and gesture; for holding his head up full of unmoved majesty, he held a sword aloft with his fair arm, which often he waved about his crown, as though he would threaten the world in that extremity.
Sir Philip Sydney. Arcadia.

A bed of lilies flow'r upon her cheek,
And in the midst was set a circling rose;
Whose sweet aspect would force Narcissus seek
New liveries, and fresher colours choose,
To deck his *beauteous* head in snowy tire;
But all in vain; for who can hope t' aspire
To such a fair, which none attain, but all admire?
Fletcher's Purple Island.

Ask me no more where Jove bestows,
When June is past, the fading rose;
For in your *beauties* orient deep,
These flowers, as in their causes, sleep.
T. Carew.

But likeness soon together drew,
What she did separate lay,
Of which one perfect *beauty* grew,
And that was Celia. *Marvell.*

O! she has *beauty* might ensnare
A conqueror's soul, and make him leave his crown
At random, to be scuffled for by slaves.
Otway. Orphan.

Like blossom'd trees o'erturn'd by vernal storms,
Lovely in death, the *beauteous* ruin lay.
Young. Night Thoughts.

The lengthened night elaps'd, the morning shines
Serene, in all her dewy *beauty* bright,
Unfolding fair the last autumnal day.
Thomson. Seasons.

As lamps burn silent, with unconscious light,
So modest ease in *beauty* shines most bright.
A. Hill.

Perhaps the most complete assemblage of *beautiful* objects that can anywhere be found, is presented by a rich natural landscape, where there is sufficient variety of objects; fields in verdure, scattered trees and flowers, running water, and animals grazing.
Blair's Lectures.

A lady seldom listens with attention to any praise but that of her *beauty*. *Johnson. Rambler.*

The silver light, which hallowing tree and tower,
Sheds *beauty* and deep softness o'er the whole,
Breathes also to the heart, and o'er it throws
A loving languor, which is not repose. *Byron.*

Her cheek of youth was *beautiful*,
Till withering sorrow blanched the bright rose there.
Maturin. Bertram.

BEAUTY. Locke defines beauty, as, 'a certain composition of color and figure, causing delight to the beholder.' Mr. Burke, confining his definition to the merely sensible qualities of things, states beauty to be 'that quality, or those qualities, in bodies by which they cause love, or some, passion similar to it.' Others define it, more generally, as a term whereby we express a certain relation of some object, either to an agreeable sensation, or to an idea of approbation. When, therefore, we say a thing is beautiful, we either mean that we perceive something that we approve, or something that gives us pleasure: whence it appears, that the idea annexed to the word beauty is double; which renders the word equivocal, and this is the source of most of the disputes on the subject of beauty.

Mr. Hazlett, in an ingenious dissertation on the subject, in the Supplement to the Encyclopædia Britannica, speaks of it as that property in objects by which they are recommended to the power or faculty of taste—the reverse of ugliness—the primary or most general object of love or admiration.

We do not regard works of science as altogether suited for dissertations on matters of taste. We find our space and our attention occupied with the more tangible and better defined objects of human knowledge. But we shall endeavour to collect the most respectable opinions on this disputed subject.

Beauty, says Dr. Reid, (Essay on the Intellectual Powers of Man, ch. iv.) is found in things so various and so very different in nature, that it is difficult to say wherein it consists, or what can be common to all the objects in which it is found. Of the objects of sense, we find beauty in color, in sound, in form, in motion. There are beauties of speech, and beauties of thought; beauties in the arts, and in the sciences; beauties in actions, in affections, and in characters. In things so different, and so unlike, is there any quality, the same in all, which we may call by the name of beauty? Why then should things so different be called by the same name? They please, and are

denominated beautiful, not in virtue of any one quality common to them all, but by means of several different principles in human nature. The agreeable emotion excited by them, and called beauty, is produced by different causes. However, though there be nothing common in the things themselves, yet the kinds of beauty, which seem to be as various as the objects to which it is ascribed, must have some common relation to us, or to something else, which leads us to give them the same name. All the objects we call beautiful, agree in two things, which seem to concur in our sense of beauty. First, when they are perceived, or even imagined, they produce a certain agreeable emotion or feeling in the mind; and, secondly, this agreeable emotion is accompanied with an opinion or belief of their having some perfection or excellence belonging to them. Whether the pleasure we feel in contemplating beautiful objects may have any necessary connexion with the belief of their excellence, or whether that pleasure be conjoined with this belief, merely by the good pleasure of our Maker, Dr. Reid does not determine. Beautiful objects excite an emotion of a soothing and enlivening kind, that sweetens the temper, allays angry passions, and promotes every benevolent affection, and disposes to other agreeable emotions, such as those of love, hope, and joy.

'There is nothing,' says Addison, 'that makes its way more directly to the soul than beauty, which immediately diffuses a secret satisfaction and complacence through the imagination, and gives a finishing to any thing that is great and uncommon. The very first discovery of it strikes the mind with an inward joy, and spreads a cheerfulness and delight through all its faculties.' This agreeable emotion, produced by beautiful objects, is accompanied with an opinion or judgment of some perfection or excellence of those objects, adapted by its nature for producing that emotion; and this, according to Dr. Reid, is a second ingredient in our sense of beauty. To assert, says this writer, that there is in reality no beauty in those objects, in which all men perceive beauty, is to attribute to man fallacious senses; and thus to think disrespectfully of the Author of our being; who has diffused over all the works of nature a profusion of beauties, which are real, and not fanciful, and thousands of which our faculties are too dull to perceive. This author distinguishes our determinations with regard to the beauty of objects into two kinds, viz. instinctive and rational. In the former case, objects strike us at once, and appear beautiful at first sight, without any reflection, and without our being able to say why we call them beautiful, or being able to specify any perfection which justifies our judgment. Whereas our rational judgment of beauty is grounded on some agreeable quality of the object, which is distinctly conceived, and may be specified. Beauty itself may be distinguished into original, and derived. It is natural and agreeable to the strain of human sentiments and of human language, says Dr. Reid, that in many cases the beauty which originally and properly exists in the things signified, should be transferred to the sign; that which is in the cause to the effect; that which is in the end to the means; and that which is in the agent to the instrument. E. G. The beauty of good breeding is not originally in the external behaviour in which it consists; it is derived from the qualities of mind which it expresses; and though there may be good breeding without the amiable qualities of mind, its beauty is still derived from what it naturally expresses. Good breeding is the picture; these agreeable qualities are the original; and it is the beauty of the original that is reflected to our senses by the picture.

Dr. Reid is of opinion, that beauty originally dwells in the moral and intellectual perfections of mind, and in its active powers, and that from this, as the fountain, all the beauty which we perceive in the visible world is derived. This was the opinion of the ancient philosophers; and it has been adopted by lord Shaftesbury and Dr. Akenside among the moderns.

Mind, mind alone! bear witness earth and heav'n,
The living fountains in itself contains
Of beauteous and sublime. Here, hand in hand,
Sit paramount the graces. Here, enthron'd,
Celestial Venus, with divinest airs,
Invites the soul to never-failing joy.

AKENSIDE.

But neither mind, nor any one of its qualities or powers, is an immediate object of perception to man. These are perceived through the medium of material objects, on which their signatures are impressed. The signs of these qualities are immediately perceived by the senses, and by them reflected to the understanding: and we are apt to attribute to the sign the beauty which is properly and originally in the thing signified. Thus, the invisible Creator hath stamped on his works signatures of his divine wisdom, power, and benignity, which are visible to all men. The works of men in science, in the arts of taste, and in the mechanical arts, bear the signatures of those qualities of mind, which were employed in their production. Their external behaviour or conduct in life expresses the good or bad qualities of their minds. In every species of animals we perceive by visible signs their instincts, appetites, affections, or sagacity; and even in the inanimate world, there are many things analogous to the qualities of mind; so that there is hardly any thing belonging to mind, which may not be represented by images taken from the objects of sense; and, on the other hand, every object of sense is beautiful, by borrowing attire from attributes of the mind. Thus, the beauties of mind, though invisible in themselves, are perceived in the objects of sense, on which their beauty is impressed. Thus also, in those qualities of sensible objects to which we ascribe beauty, we discover in them some relation to mind, and the greatest in those that are most beautiful. The qualities of inanimate matter, in which we perceive beauty, are sound, color, form, and motion: the first being an object of hearing; and the other three of sight. These several qualities are particularly illustrated by Dr. Reid, with a view of evincing the beauty that respectively belongs to them. Of all the objects of sense, the most striking and attractive beauty is perceived in the human species, and particularly

in the fair sex. In the following well-known passage of Milton, this great poet derives the beauty of the first pair in paradise from those expressions of moral and intellectual qualities, which appeared in their outward form and demeanor.

> Two of far nobler shape, erect and tall,
> Godlike erect! with native honor clad,
> In naked majesty, seem'd lords of all,
> And worthy seem'd, for in their looks divine,
> The image of their glorious Maker, shone
> Truth, wisdom, sanctitude severe, and pure:
> Severe, but in true filial freedom plac'd,
> Whence true authority in man; though both
> Not equal, as their sex not equal seem'd;
> For contemplation he, and valour form'd,
> For softness she, and sweet attractive grace.

And here we cannot forbear subjoining the excellent reflections of Mr. Thomson, a late writer on the subject of beauty: 'If we should see a person employ himself with a sledge hammer to dash the enchanting form of the Venus de Medicis to pieces, break her lovely limbs, and deface her beauteous features, we should not hesitate a moment to pronounce him a savage barbarian, without taste, feeling, or sentiment; though his frenzy was employed only on a senseless piece of stone: what then must we think of the diabolical savage, who exercises the worst of all cruelties (because the most lasting and affecting both to body and mind) on the most beautiful and amiable of all creatures on this side heaven?—made expressly for his happiness, solace, and delight;—by first corrupting and betraying her, and then basely abandoning her to perish with want, wretchedness, and misery.'

Dr. Blair (Lectures, vol. i. p. 101, &c.), in his enumeration of the separate principles of beauty, in each of those classes of objects, which most remarkably exhibit it, begins with *color*, as affording the simplest instance of beauty. With respect to this, he observes, that neither variety, nor uniformity, nor any other principle which he knows, can be assigned as the foundation of beauty; and that it can be referred to no other cause but the structure of the eye, which determines us to receive certain modifications of the rays of light with more pleasure than others. As his organ varies in different persons, they have their different respective favorite colors. In some cases, he thinks it probable, that association of ideas has influence on the pleasure which we receive from color. Green, for instance, may appear more beautiful, by being connected in our ideas with rural prospects and scenes; white with innocence; blue, with the serenity of the sky. Independently of such associations, those colors chosen for beauty are, generally, delicate, rather than glaring. *Figure* opens to us forms of beauty more complex and diversified. Under this head, regularity is first noticed as a source of beauty. Thus a circle, a square, a triangle, or a hexagon, please the eye by their regularity, as beautiful figures. But regularity is not the sole, or the chief foundation of beauty in figure. On the contrary, a certain graceful variety is found to be a much more powerful principle of beauty. Regularity, according to this author, expresses beauty chiefly, if not solely, on account of its suggesting the idea of fitness, propriety, and use, which have always a greater connexion with orderly and proportioned forms, than with those which appear not constructed according to any certain rule. Nature, the most graceful artist, hath, in all her ornamental works, pursued variety with an apparent neglect of regularity. Mr. Hogarth, in his Analysis of Beauty, published about the year 1753, enumerates, as elements of beauty, fitness, variety, uniformity, simplicity, intricacy, and quantity; and he observes, that figures bounded by curve lines are, in general, more beautiful than those bounded by straight lines and angles. The beauty of figure principally depends, in his opinion, upon two lines which he has selected. One of them is the 'waving line,' somewhat in the form of the letter S: and this he calls the 'line of beauty,' which is found in shells, flowers, and such other ornamental works of nature, and is also common in the figures designed by painters and sculptors for the purpose of decoration. The other line, which he calls the 'line of grace,' is the former waving curve, twisted round some solid body, and exhibited in twisted pillars and twisted horns, and in the curling worm of a common jack. Variety plainly appears, in the instances which he mentions, to be so material a principle of beauty, that he defines the art of drawing pleasing forms to be the art of varying well; and, according to him, the curve line, which is so much the favorite of painters, derives its chief advantage from its perpetual bending and variation from the stiff regularity of the straight line. *Motion*, says Dr. Blair, furnishes another source of beauty, distinct from figure; being of itself pleasing, so that bodies in motion are, cæteris paribus, preferred to those at rest. But the quality of beautiful belongs to gentle motion, such as that of a bird gliding through the air, and that of a smooth running stream. In general, motion in a straight line is less beautiful than that in an undulating direction; and motion upwards is also commonly more agreeable than motion downwards. The easy curling motion of flame and smoke is an object singularly pleasing, and exhibits an instance of Mr. Hogarth's waving line of beauty. This artist observes, that, as all the common and necessary motions for the business of life, are performed in straight or plain lines, all the graceful and ornamental movements are made in waving lines.

Dr. Beattie, in his Dissertations, Moral and Critical, has introduced, in his digression on beauty, some ingenious remarks on this subject. After observing that custom has a perpetual influence in determining our notions of beauty, he proceeds to prove, that from associations founded on habit, many, or perhaps most of those pleasing emotions are derived, which accompany the perception of what in things visible is called beauty. With regard to the beauty or awkwardness of motion, he observes, that the one will be found to please, and the other to displease, chiefly on account of certain disagreeable ideas suggested by the former, and of certain disagreeable ones associated with the latter. Motions, that imply ease, with such an arrangement and proportion

of parts in the moving object, as may give reason to expect its continuance without injury, are generally pleasing, at least in animals, especially when they betoken a sort of perfection suited to the nature of the animal. But motions that betray infirmity, unwieldiness, imperfection, or the appearance of danger, cannot be called beautiful, because they convey unpleasing ideas. These observations are illustrated by a variety of apposite instances. Cicero (de Off. l. i. sect. 36) blames every motion that alters the countenance, quickens the breath, or betrays any discomposure. Rousseau observes, that in running, a woman is destitute of that grace which attends her on other occasions. Perhaps, says Beattie, the jutting out of her elbows, the natural effect of her endeavouring, with lifted hands, to secure the most delicate part of the human frame, may give to her motion the appearance of timidity and constraint. Or, perhaps, she may fail in this exercise, merely because, according to our manners, she cannot be much accustomed to it.

It is not easy to convey, in so few words, so many charming ideas of beauty, in its several varieties of color, shape, attitude, and motion, as Gray has combined in the following image :—

Slow melting strains their queen's approach declare;
Where'er she turns the graces homage pay:
With arms sublime that float upon the air,
In gliding state she wins her easy way:
O'er her warm cheek and rising bosom move
The bloom of young desire, and purple light of love.

Burke, in his Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful, excludes from the number of real causes of beauty, the proportion of parts, fitness, or that idea of utility which consists in a part's being well adapted to answer its end, and also perfection; and he observes, p. 210, that beauty is, for the greater part, some quality in bodies, acting mechanically upon the human mind by the intervention of the senses. The qualities of beauty, as they are merely sensible qualities, which he enumerates, are the following: they should be comparatively small, smooth, various in the direction of their constituent parts; these parts should not be angular, but melted, as it were, into each other; they should be of a delicate frame, without any remarkable appearance of strength; the colors should be clear and bright, but not very strong and glaring; and any glaring color that is introduced should be diversified with others. These are the seven properties upon which, according to this author, beauty depends; properties that operate by nature, and are less liable to be altered by caprice, or confounded by a diversity of tastes, than any others. The physiognomy also, says Mr. Burke, has a considerable share in beauty, especially in that of our own species. The manners give a certain determination to the countenance, which, being observed to correspond pretty regularly with them, is capable of joining the effects of certain agreeable qualities of the mind to those of the body. So that to form a finished human beauty, and to give it its full influence, the face must be expressive of such gentle and amiable qualities as correspond with the softness, smoothness, and delicacy of the outward form. For Mr. Burke's mode of illustrating and confirming his theory of beauty, the reader is referred to his work above cited.

Dr. Sayers, in his Disquisitions, Metaphysical and Literary, 8vo. in 1793, has given a new analysis of beauty, conducted on the principles which were applied by Dr. Priestley, in his Lectures on Oratory and Criticism, and by Mr. Alison, in his Essays on Taste, to the explanation of the intellectual pleasures, namely, the doctrines of the Hartleyan school. His argument, summed up in a few words, is as follows: that individual of a class of objects is justly to be esteemed more beautiful than the rest, with the whole of which, or with its component parts, when properly understood, the greater number of the excellencies of its class are universally associated. The same may be asserted of any species of objects, when compared with any other species of its kind; and that object may be justly esteemed a 'standard of beauty,' with the whole appearance, or with the component parts of which, when properly understood, all the excellencies of its kind are 'universally' associated.

Mr. Alison's Essays, Mr. Knight's Analytical Enquiry, and Mr. D. Stewart's Dissertations on the Beautiful, and on Taste, in his Philosophical Essays, are each of them modern works of sterling merit, and may be said to contain all the known truths of this subject.

Mr. Alison contends, that all beauty, or at least all the beauty of material objects, depends on the associations that may have connected them with the ordinary affections or emotions of our nature; and in this, which is the fundamental point of his theory, we conceive him to be no less clearly right, than he is convincing and judicious in the copious and beautiful illustration by which he has sought to establish its truth. When he proceeds, however, to assert, that our sense of beauty consists not merely in the suggestion of ideas of emotion, but in the contemplation of a connected series of such ideas, and indicates a state of mind in which the faculties, half active and half passive, are given up to a sort of reverie or musing, in which they may wander, though among kindred impressions, far enough from the immediate object of perception, we confess that he not only seems to us to advance a very questionable proposition, but very essentially to endanger the evidence, as well as the consistency, of his general doctrine. In the long train of interesting meditations to which Mr. Alison refers,—in the delightful reveries in which he would make the sense of beauty consist,—it is obvious that we must soon lose sight of the external object which gave the first impulse to our thoughts; and though we may afterwards reflect upon it, with increased interest and gratitude, as the parent of so many charming images, it is impossible that the perception of its beauty can depend upon a long series of various and shifting emotions.

The work of Mr. Knight is more lively, various, and discursive, than Mr. Alison's, but not so systematic or conclusive. It is the cleverer book of the two, but not the most philosophical

discussion of the subject. He agrees with Mr. Alison in holding the most important, and, indeed, the only considerable part of beauty, to depend upon association, and has illustrated this opinion with a great variety of just and original observations. But he maintains that there is a beauty independent of association, prior to it, and more original and fundamental, the primitive and natural beauty of colors and sounds. Now this we look upon to be a heresy, and a heresy inconsistent with the very first principles of catholic philosophy. Language, it is believed, affords no other example of so whimsical a combination of different objects under one appellation, or of the confounding of a direct physical sensation with the suggestion of a social and sympathetic moral feeling.

Mr. Stewart makes fewer positive assertions, and enters less into the matter of controversy. His Essay on the Beautiful is rather philological than metaphysical. The object of it is to show by what gradual and successive extensions of meaning, the word, though at first appropriated to denote the pleasing effect of colors alone, might naturally come to signify all the other pleasing things to which it is now applied. In this investigation he makes many admirable remarks, and touches with the hand of a master upon many of the disputable parts of the question; but he evades the particular point at issue between us and Mr. Knight, by stating, that it is quite immaterial to his purpose, whether the beauty of colors be supposed to depend on their organic effect on the eye, or on some association between them and other agreeable emotions, it being enough for his purpose that this was probably the first sort of beauty that was observed, and that to which the name was at first exclusively applied. It is evident to us, however, that he leans to the opinion of Mr. Knight, as to this beauty being truly sensual or organic. In observing, too, that beauty is not now the name of any one thing or quality, but of very many different qualities,—and that it is applied to them all, merely because they are often united in the same objects, or perceived at the same time and by the same organs,—it appears to us that he carries his philology a little too far, and disregards other principles of reasoning of far higher authority. To give the name of beauty, for example, to every thing that interests or pleases us through the channel of sight, including in this category the mere impulse of light that is pleasant to the organ, and the presentment of objects, whose whole charm consists in awakening the memory of social emotions, seems to us to be confounding things together that must always be separate in our feelings, and giving a far greater importance to the mere identity of the organ of perception, than is warranted either by the ordinary language or ordinary experience of men. Upon the same principle, we should give this name of beautiful, and no other, to all acts of kindness or magnanimity, and, indeed, to every interesting occurrence which took place in our sight, or came to our knowledge by means of the eye: nay, as the ear is also allowed to be a channel for impressions of beauty, the same name should be given to any interesting or pleasant thing that we hear, and good news read to us from the gazette should be denominated beautiful, just as much as a fine composition of music. These things, however, are never called beautiful, and are felt, indeed, to afford a gratification of quite a different nature.

Beauty in the Fine Arts. Nothing here has been decided as to the nature and properties of abstract beauty itself, even if such a quality be acknowledged. If an Asiatic artist was to treat this subject, his principle, it is evident, would differ from that of a European. This must not, however, prevent us from studying some principles of beauty, as they are the foundation of the ornamental part of sculpture, painting, and architecture; and govern the proportion of the human figure. Modern artists seem to have implicitly adopted Grecian ideas; which circumstance may account for the prevalence of the antique profile in modern pictures, which is certainly a great inconsistency, when the subjects are chosen from any other than Grecian history; there being one principle of beauty in the form of the Greeks, another in that of the Romans, and another in that of the modern Europeans, and yet they are all beautiful. Professor Camper, in his book upon the different forms of the human cranium, has endeavoured to trace this style of the straight or Grecian profile from a probable source. The projection of the mouth and depression of the forehead, with a flat nose, marks that kind of face which is the nearest allied to the brute creation; there being but one degree between a dog, monkey, ape, ourang-outang, Calmuc, and negro. From the negro to the European countenance are many degrees, which may be traced by an attentive study of the human species; and again, between the best modern faces and those of the antique, there are also many gradations of form and outline. Perhaps from the Greeks observing the resemblance between the lowest class of human countenances and those of monkeys, may be the reason why they conceived beauty to be as far as possible removed from all resemblance to them. As the lower part of the brutal face projected, in such proportion they thought the same position of the human face should recede; and as in the former there was a descent from the forehead to the nose, in the latter it should be perpendicular. As a small space between the eyes gives the appearance of an ape, they made the distance of man wide. As a great breadth of cranium at the eyes, ending above in a narrow forehead, and below in a pointed chin, marked the face of a savage; they gave a squareness of forehead and a breadth of face below, to express dignity of character. Hence, may be the origin of that ideal beauty, which has created so many schisms and feuds in art, and which nothing but a recurrence to nature can rectify. See Ideal Beauty.

BEAUVAIS (Charles and William), two antiquaries. William, born in 1698, was a member of the Literary Societies of Orleans, Cortona, &c.; he published a work on the Medals of the Roman Empire in 3 vols. 12mo. 1767, and died in 1773.

Charles Nicholas was a native of Orleans, where he was born in 1745. He practised physic at Montpelier, and is the author of some Essays on the History and Antiquities of his native city, a Topographical Description of Mount Olivet, and other tracts. His death took place in 1794.

Beauvais (Vincent de), a friar of the Dominican order, was a native of the diocese of Beauvais, in France. Louis IX. supplied him with the means of prosecuting his great work. It is a kind of Encyclopædia, divided into four parts: the first entitled, Speculum Doctrinale, treats of the sciences in general, from grammar to theology; the second Speculum Historiale, contains a summary of general history from the beginning of the world to the year 1254, of which there is a continuation by an anonymous author to 1494; the third part, or Speculum Naturale, relates to physics, or natural philosophy; the fourth, Speculum Morale, is a treatise on vice and virtue. This last part was completed by another hand, Beauvais dying in 1224

Beauvais, a city of France, the ancient Bellovacum, in the department of the Oise, and late province of the Isle of France, on the Therin. The cathedral is dedicated to St. Peter, and is much admired for its fine architecture, and the extraordinary elevation of the choir. It had formerly a great number of relics, and a curious library. There are twelve other churches. The town was ineffectually besieged by the English in 1443; and by the duke of Burgundy in 1472, with an army of 80,000 men. In this last siege the women signalised themselves by sallying forth against the besiegers, headed by Jeanne Laine, and under a standard which was long after preserved in the church of the Jacobins. There was, before the revolution, a procession on the 10th of July in memory of this exploit. Beauvais was long the capital of Beauvoisis, and the see of a bishop, who was the first of the three ecclesiastical counts and peers of France. At the coronation of the king, he carried the royal mantle. This bishopric was suppressed at the revolution. It is still a fortified town, though commanded by several heights, and contains about 12,800 inhabitants. It has several flourishing manufactures of linen and woollen cloths, calicos, serges, and fine tapestry. From its supposed impregnability, it has obtained the appellation of La Pucelle. Many eminent men have been born here. It is about six leagues from Paris, in lat. 49° 25′ N., and long. 2° 19′ E.

Beauvilliers (Francis de, duke de St. Aignan), was born in 1607, and entered into the army. He distinguished himself in several engagements; on which account Louis XIV. raised him to a dukedom. He was adroit in the direction of the court festivals, and many of his verses are to be found in the works of Madame Deshoulieres, of Scarron, &c. He died in 1687.

Beauvilliers (Paul, duke de), eldest son of the above, was first gentleman of the bedchamber, minister of state, chief of the royal council of finance, and governor of the duke of Burgundy, father of Louis XV. He died in 1714 at the age of sixty-six. This nobleman was distinguished for his cultivated talents and probity of character; as well as for his success in the education of the duke of Burgundy which he shared with the celebrated Fenelon.

Beauvilliers (Paul Hippolitus, duke de St Aignan), son of the preceding, had the rank of lieutenant-general in the army, the collar of the royal orders, and was a member of the French Academy. He was the author of Amusements Littéraires, and a Memoir of the Transactions of the Academy of Inscriptions, on the cession made by Andrew Paleologus, of the empire of Constantinople and Trebizond, to Charles VIII. of France.

BEAUVOIR sur Mer, a maritime town of France in the department of La Vendee, and late province of Poitou; twenty-three miles south-west of Nantes. It lies near the sea-coast, opposite the Isle of Noirmoutier, and had formerly the title of marquisate. It contains about 1900 inhabitants, and trades in wood, wool, salt, cattle, and butter.

BEAUVOISIS, a ci-devant territory of France, formerly part of Picardy, and afterwards of the Isle of France. Beauvais was the capital.

BEAUZEE (Nicholas), a French author, born at Verdun in 1717. He became professor of grammar in the military school; and wrote an Universal Grammar, or Exposition of the Elements of Languages, in two vols. 8vo.; an Exposition of the Historical Proofs of Religion, and several other works. Having been elected member of the academy, he wrote the articles relating to grammar for the Encyclopædia; but though he was thus connected with infidels, he was himself a faithful churchman. He once asked Diderot how they came to elect him a member of the academy, being a Christian? Diderot replied, 'Because we had not a grammarian among us, and we considered you an honest man.'

BE'BATHE. Bathe, with the prefix be. See Bathe.

BEBELINGUEN, or Boblingen, a town of Germany, in the duchy of Wirtemburg, seated on a lake from which proceeds the river Wurm, ten miles north-west of Stutgard.

BE'BLAST. Blast, with the prefix be. See Blast.

BE'BLED, } Bled and blood, with the pre-
BE'BLOOD. } fix. See both.

BE'BLIND. See Blind.

BE'BLISTER. Blister, with the prefix. See Blister.

BE'BLOT. Blot, and the prefix. See Blot.

BE'BLUBBER. Blubber, with the prefix. See Blubber.

BEBRYCIA, in ancient geography, the name of Bithynia, so called from the Bebryces its inhabitants; who were afterwards driven out by two Thracian nations, the Bithyni and Thyni: from whom, in process of time, the country took the name of Bithynia.

BEC, a town of France, in the department of the Lower Seine, and late province of Normandy, seated on a tongue of land, at the confluence of two rivers.

BECAH, or Bekah, a Jewish coin, being half a shekel. In Dr. Arbuthnot's table of reductions, the bekah amounts to 13½d. In Dr

Prideaux's computation to 1*s.* 7*d.* Every Israelite paid 100 bekahs a-head annually for the support of the temple.

BE'CALM, } Calm, and the prefix be.
BE'CALMING. } See CALM. The prefix thus joined to give emphasis; to add a syllable in the verse; to give a ludicrous or endearing force to the term employed.

BECANCOUR, a river of Lower Canada, which rises to the south of St. Lawrence, and is afterwards increased by several tributary streams. After an easterly course of about forty-six miles, it diverges to the north-west for about twenty-one miles, and discharges itself into the St. Lawrence, seven miles below the town of Three Rivers.

BECASSINE, in zoology, a name given to the tringa minor, or sand-piper.

BECASSE, in zoology, a species of woodcock.

BE'CAUSE. Be and cause. Cause being; there being cause; *because* of his sickness; i. e. his sickness is the cause. It formerly also expressed the motive or end; but is not now so used. It has in some sort the force of a preposition. But because it is compounded of a noun, has *of* after it.

His squiers, which that stoden ther beside,
Excused him *because* of his sikenesse,
Which letted him to done his besinesse. *Chaucer.*

God persecuteth us *bycause* we abase his holy Testament, and *bycause*, when we knowe the truth, we folowe it not. *Tyndall's Works.*

Because thou hast, though thron'd in highest bliss,
Equal to God, and equally enjoying
Godlike fruition, quitted all to save
A world from utter loss, and hast been found,
By merit, more than birthright, Son of God;
Found worthiest to be so, by being good,
Far more than great or high; *because* in thee
Love hath abounded more than glory abounds,
Therefore thy humiliation shall exalt
With thee thy manhood also to this throne;
Here shalt thou sit incarnate, here shall reign
Both God and Man, for both of God and Man,
Anointed universal king; all power
I give thee; reign for ever, and assume
Thy merits: under thee as head supreme
Thrones, princedoms, pow'rs, dominions I reduce;
All knees to thee shall bow, of them that bide
In heaven, or earth, or under earth, in hell. *Milton.*

Why is our food so very sweet?
Because we earn before we eat.
Why are our wants so very few?
Because we nature's calls pursue.
Whence our complacency of mind?
Because we act our parts assign'd. *Cotton.*

BECCABUNGA, brooklime; the trivial name of a species of veronica. See VERONICA.

BECCAFICO, in zoology, a small bird, scarcely so large as the common linnet, and with a remarkably short body. Its head, neck, back, wings and tail, are of a greenish gray, and in some of greenish brown. It feeds on vegetables, berries, &c. and is common in the north of England, where, according to Ray, it is called the petty-chaps.

BECCARI (James Bartholomew), a physician of Bologna, was born in 1682. He was professor of chemistry at his native city many years, and published, in 1729, a Dissertation on the Impurity of its Air, and in 1730 a Treatise on the Internal Motion of Fluids; &c. He died 1796.

BECCARIA (John Baptist), an ingenious philosopher of the eighteenth century. He was a native of Mondovi in Piedmont, and became professor of philosophy at Palermo, and afterwards at Rome, from whence he removed to Turin. The king of Sardinia had a very great regard for him, and made him tutor to his sons. He made several important discoveries in electricity, and wrote, 1. Experimenta quibus Electricitas Vindex late constituitur, &c. 4to. Turin, 1771. 2. Electricismo Artificiale, 4to, 1772, translated into English, 4to. London, 1776; besides an Essay on the Cause of Storms and Tempests, and several pieces on the Meridian of Turin, &c. He died in 1781.

BECCARIA (Bonesana Cæsar, marquis), was born at Milan in 1735, and showed a very early propensity to philosophical subjects. He first studied under the Jesuits at Parma, but left college at seventeen, and became henceforth the director of his own useful researches. His devotedness to the study of Jurisprudence and Political Philosophy, was first determined by the Lettres Persannes of Montesquieu; a production capable, indeed, of alluring a less enthusiastic mind. But his industry appears to have been chiefly stimulated by the patriotic and honorable desire of diffusing instruction among his countrymen, whom he represents as abandoned to ignorance; and who were little prepared for liberal opinions or political science. Fortunately, however, he gained the confidence of Count Firmiani, then governor of that part of the Austrian dominions; a nobleman, who, with comprehensive views of policy, concurred in every plan which was calculated for improving the state of the provinces.

Beccaria's first work appeared in the year 1762, and consisted of Observations on the Derangement of the Currency in the Milanese States. Soon after he established a select literary society at Milan, which, among other distinguished men, included the brothers, Alessandro and Pietro Verri. Assisted by these friends, and patronised by Fermiani, he commenced a periodical published under the name of the Caffe, a plan suggested to them by the celebrity of our English Spectator. But, the most remarkable production to which this association gave rise, and that upon which the reputation of Beccaria was destined chiefly to rest, was the treatise on Crimes and Punishments (Dei Delitti e Delle Pene). This is said to have been undertaken at the earnest solicitation of Count Alexander Verri, who then discharged the functions of Protector of Prisoners (Protettore de' Carcerati) at Milan. It was written at the house of Peter Verri, where the meetings of the society were held; and in concert with him the author, every evening, corrected what he had written during the day. In this manner this celebrated work was completed in two months, and was printed in the course of the year 1764.

The author here breaks up most of the important ground that Sir Samuel Romilly, Bentham, and others, have so well cultivated since: he is everywhere the advocate of reason, sound po-

licy, and humanity; and, by examining the foundation, objects, and consequent boundaries of penal law, he exposes the inefficacy as well as injustice of many provisions in the judicial code of his own country, and in those of other European nations;—provisions only the more pernicious in many cases, as derived from remote times, and perverting our respect for established maxims into the most debasing and servile barbarism. Six Italian editions were immediately called for; and it is computed that it has run through more than fifty editions and translations. As a most important conclusion resulting from this examination, or rather as concentrating a number of his conclusions, he closes his book with the following proposition:—'In order that punishment may not be an act of violence, of one, or of many, against an individual member of society, it is essential that it should be public, prompt, and necessary, the least possible in the given case, and determined by the law.'

The prospects which Beccaria entertained as to the probable influence of his works, appears from the sentence of Lord Bacon, which he prefixed to some of the editions. 'It is not to be expected in any difficult undertaking, of whatever kind, that the same person who sows the seed should also reap the harvest; but there must of necessity, be a preparation and gradual progress to maturity.' 'Never,' says a writer in the Biographie Universelle, 'did so small a book produce so great an effect.' The medal given by the academy of Berne was instantly bestowed upon Beccaria; and the Empress Catharine II. invited him to St. Petersburgh, with the offer of an honorable station at her court; a proposal which was the means of procuring him a similar distinction at home. In 1767 was issued an imperial order for establishing, in the Palatine College at Milan, a Professorship of Public Law and Economics, under the title of Scienze Camerali. To this chair, endowed expressly for him, the marquis was appointed on the 1st of November, 1768, and commenced the duties of it in the month of January following. From the preliminary discourse (prolusione) which he pronounced on this occasion, and in which he sets forth the objects of the institution, it appears that the only instructions which he received on his appointment, consisted in an order to deliver his discourses in the vulgar tongue; an injunction as highly honorable to the government as all the other circumstances of the transaction. His lectures, which he received a special permission to deliver in his own house, attracted much notice. They were not published during his life; but have since appeared, under the title of Elementi di Economia Pubblica, in the compilation of the Scrittori Classici Italiani de Economia Politica, printed at Milan. One of his inferences on this subject is, that 'every restriction on freedom, whether in the case of commerce, or any other, ought to be a result from the necessity of preventing an actual disorder, not the effect of a purpose or aim at amelioration.' And he has repeated the same doctrine under different views, in various passages.

In 1770 he published an Enquiry into the nature of Style, part 1. which he never completed. In the following year he was appointed a member of the Supreme Economic Council; on the suppression of which he was transferred to the Magistracy of State; and, lastly, by a despatch of the 17th of January, 1791, was named one of the Board for Reform of the Judicial Code, civil and criminal. His activity in the discharge of these important trusts is proved by the circumstance, that all the chief matters in those different departments were committed to his direction, or guided by his counsels. The most remarkable of his state papers were, various Ordinances relative to the grain; a very important Despatch transmitted to the Court in 1771, which gave rise to the reform of the public money in 1778; a Plan, proposed in 1780, for effecting an uniformity in the weights and measures; and certain Proposals, in 1786, founded on the tables of the population.

In 1776 the marquis made a journey to Paris, in company with Alessandro Verri, and there passed about three weeks in the society of D'Alembert, and other eminent men of letters: on his return he visited Voltaire. This seems to have been the only incident which, for a period of twenty-five years, diversified his manner of life, or interrupted his public duties. He died of apoplexy in the year 1793, having been twice married. He has the character of having been stedfast in his friendships; modest, but tenacious of his opinions; and much above jealousy or envy in regard to other literary men. It is related of him that the king of Naples, while at Milan, twice attempted to find him at his house; but that the marquis found means on both occasions to escape from his distinguished guest.

BECCLES, a town of Suffolk, seated on the Waveney. It has an elegant church, with a lofty spire; and two free schools, one of them with ten scholarships for Emanuel college, Cambridge. There is a market on Saturday. It lies twelve miles south-west of Yarmouth, and 109 north-east of London.

BE'CHANCE, *v.* & *adv.* Be and chance. See CHANCE.

BE'CHARM. Be and Charm. See CHARM.

BECHER (John Joachim), a celebrated chemist, born at Spires in 1645, and connected with the most learned men in Europe. The emperor, the electors of Mentz and Bavaria, and other persons of high rank, furnished him with the means of making experiments in mathematics, natural philosophy, medicine, and chemistry. He was invited to Vienna, where he contributed greatly to the establishment of several manufactures, a chamber of commerce, and an India company; but the jealousy of the ministers occasioned his disgrace and ruin. He was not less unfortunate at Mentz, Munich, and Wurtzburg; which determined him to go to Haerlem, where he invented a machine for working a great quantity of silk in a little time, and with few hands; but new misfortunes made him come to England, and he died at London in 1685. He wrote, 1. Physica Subterranea, which was reprinted at Leipsic in 1703, and in 1739, in 8vo, with a small treatise, by E. Stahl, entitled Specimen Becherianum. 2. Experimentum Chymicum Novum, 8vo. 3 Character pro Notitia Linguarum Universali. 4.

Institutiones Chymica, seu Manuductio ad Phisophiam Hermeticam, 4to. 5. Institutiones Chymicæ Prodromi, 12mo. 6. Experimentum Novum ac Curiosum de Minera Arenaria Perpetua, &c.

BECHERA, in botany, a genus of plants, class, pentandria; order, digynia: CAL. five-cleft, with a globular tube: COR. five-petalled: CAP. two-celled and bi-valved. The name is derived from the reverend John Becher of Southwell Nottinghamshire, an accurate botanist, to whom the science is indebted for the discovery of the crocus nudiflorus. This plant is a native of Tranquebar.

BECHICS, BECHICHA, among the old physicians, amount to much the same with pneumonics, thoracics, expectorants, and pectorals.

BECHIN, a town and circle of Bohemia, which abounds in salt mines and mineral waters, and particularly the singular mineral called Bechin stone. Bechin, the capital, has an ancient castle. It was taken and burnt by general Bucquoy in 1619, and was often the scene of conflict in the thirty years' war. It is seated on the river Luschintz, fifty miles south by west of Prague.

BECK, *v.* & *n.* } Sax. *becken*, Fr. *bec*, head.
BECK'ING. } To make a sign with the head; a nod of command, or of intimation.

Bell, book, and candle, shall not drive me back,
When gold and silver *beck* me to come on.
Shakspeare.

Oh this false soul of Egypt, this gay charm,
Whose eye *beck'd* forth my wars, and call'd them home. *Id. Antony and Cleopatra.*

Neither the lusty kind showed any roughness, nor the easier any idleness; but still, like a well-obeyed master, whose *beck* is enough for discipline. *Sidney.*

Haste, thee, nymph, and bring with thee
Quips, and cranks, and wanton wiles,
Nods, and *becks*, and wreathed smiles. *Milton.*

Then forthwith to him takes a chosen band
Of spirits, likest to himself in guile,
To be at hand, and at his *beck* appear. *Id.*

The menial fair, that round her wait,
At Helen's *beck* prepare the room of state. *Pope.*

BECK, or BEKE, a word which imports a small stream of water issuing from some bourn or spring. The word is chiefly used among us in the composition of names of places originally situated on rivulets; such as Welbeck, Bournbeck, &c. The Germans use beck in the same sense.

BECKET (Thomas), lord chancellor of England, and archbishop of Canterbury in the 12th century. The story of his birth is as extraordinary as that of his life. His father, Gilbert Becket, some time sheriff of London, went on a pilgrimage to Jerusalem, where being surprised and enslaved by a party of Saracens, his master's daughter fell in love with him; and when he made his escape, followed him to London. So singular an instance of heroic affection struck him; and after consulting with some bishops, he baptised her by the name of Matilda, from which marriage proceeded the haughty Thomas Becket. Being raised to the archbishopric, he began the great dispute between the crown and the mitre, and sided with the pope: at which King Henry II. was greatly offended; and calling an assembly of the bishops at Westminster, offered six articles against papal encroachments, which he urged Becket to assent to. Becket, at the importunities of several lords, signed them: but relapsing he was ordered to be tried as a traitor; upon which he fled into Flanders. The king banished all his relations, and Becket excommunicated all his opposers. At last, after seven years, by the intercession of the French king and the pope, he returned; but refused to absolve the bishops and others, whom he had excommunicated: upon this the king grew enraged; and is reported to have said, in the presence of his court, then in Normandy, that he was an unhappy prince, who maintained a great number of insignificant persons about him, none of whom had gratitude, or spirit enough, to revenge him on a single insolent prelate. Hearing these exclamations, four gentlemen of the court started for Canterbury, determined upon assassinating the archbishop. They endeavoured to drag him out of the cathedral, but finding they could not do this without difficulty, they beat out his brains there, on the pavement: 29th of December, 1171. The assassins being now afraid they had gone too far, durst not return to the king's court, but retired to Knaresborough in Yorkshire, and at length took a voyage to Rome; where, being admitted to penance by Alexander III., they went to Jerusalem; and, according to the pope's order, spent their lives in penitential austerities. In the mean time, king Henry was, or affected to be, much disturbed at the news of Becket's death, and despatched an embassy to Rome to clear himself from the imputation of being connected with it. Immediately all divine offices ceased in the church of Canterbury, for a year, excepting nine days; at the end of which, by order of the pope, it was reconsecrated. Two years after, Becket was canonised; and the two following years, Henry returned to England, went to Canterbury, where he did penance, as a testimony of his regret for the murder of Becket. When he came within sight of the church where the archbishop was buried, he alighted off his horse, and walked barefoot, in the habit of a pilgrim, till he came to the tomb. Here, after he had prostrated himself, and prayed for a considerable time, he submitted to be scourged by the monks, and passed all that day and night without refreshment, kneeling upon the bare stone. In 1221 Becket's body was taken up, fifty years after his murder, in the presence of Henry III. and a great concourse of the nobility, and deposited in a rich shrine, erected at the expense of Stephen Langton, archbishop of Canterbury. This was soon visited from all parts, and enriched with the most costly gifts and offerings: the miracles said to be wrought at his tomb were so numerous, that Gervase of Canterbury tells us, two large volumes, recounting them, were kept in the church. The monks used to raise his body every year; and the day on which this ceremony was performed, which was called the day of his translation, was a general holiday: every fiftieth year a jubilee was celebrated to his honor, which lasted fifteen days: plenary indulgences were then

licy, and humanity; and, by examining the foundation, objects, and consequent boundaries of penal law, he exposes the inefficacy as well as injustice of many provisions in the judicial code of his own country, and in those of other European nations;—provisions only the more pernicious in many cases, as derived from remote times, and perverting our respect for established maxims into the most debasing and servile barbarism. Six Italian editions were immediately called for; and it is computed that it has run through more than fifty editions and translations. As a most important conclusion resulting from this examination, or rather as concentrating a number of his conclusions, he closes his book with the following proposition:—'In order that punishment may not be an act of violence, of one, or of many, against an individual member of society, it is essential that it should be public, prompt, and necessary, the least possible in the given case, and determined by the law.'

The prospects which Beccaria entertained as to the probable influence of his works, appears from the sentence of Lord Bacon, which he prefixed to some of the editions. 'It is not to be expected in any difficult undertaking, of whatever kind, that the same person who sows the seed should also reap the harvest; but there must of necessity, be a preparation and gradual progress to maturity.' 'Never,' says a writer in the Biographie Universelle, 'did so small a book produce so great an effect.' The medal given by the academy of Berne was instantly bestowed upon Beccaria; and the Empress Catharine II. invited him to St. Petersburgh, with the offer of an honorable station at her court; a proposal which was the means of procuring him a similar distinction at home. In 1767 was issued an imperial order for establishing, in the Palatine College at Milan, a Professorship of Public Law and Economics, under the title of Scienze Camerali. To this chair, endowed expressly for him, the marquis was appointed on the 1st of November 1768, and commenced the duties of it in the month of January following. From the preliminary discourse (prolusione) which he pronounced on this occasion, and in which he set forth the objects of the institution, it appears that the only instructions which he received on his appointment, consisted in an order to read his discourses in the vulgar tongue; an injunction as highly honorable to the government and other circumstances of the transaction. These lectures, which he received a special permission to deliver in his own house, attracted much attention. They were not published during his lifetime, but have since appeared, under the title of Elementi di Economia Pubblica, in the collection of Scrittori Classici Italiani de Economia Politica, printed at Milan. One of his influential maxims on this subject is, that 'every restriction of commerce, whether in the case of commerce with foreigners, ought to be a result from the necessity of preventing an actual disorder, not from the mere purpose or aim at ameliorating.' He has repeated the same doctrine under various forms in various passages.

In 1770 he published an Essay on the Public Style, part 1. which he

the following year he was appointed one of the Supreme Economical Board, the suppression of which he was the means of procuring the magistracy of State; and, on the 7th of December, 17 the 17th of January, 17 Board for Reform of t criminal. His activ important trusts is pr that all the chief m partments were con guided by his co of his state papers lative to the grain transmitted to t rise to the refor a Plan, propos formity in the tain Proposals of the popul

In 1776 t company w about thr and other he visite the only five ye terrupt in the He h his opin re th te n f

Thy sorrow ought suffice to purge thy fault, if it were more;
The virtue of which sound mine heart did so revive,
That I methought was made as whole as any man alive. *Earl of Surrey.*

For he that will be called with a *beck*,
Makes hasty suit on light desire,
Is ever ready to the check,
And burneth in no wasting fire. *Wyatt.*

Proceeding to the midst he stil did stand,
As if in mind he something had to say;
And to the vulgare *beckning* with his hand,
In sign of silence, as to heare a play,
By lively actions he gan bewray,
Some argument of matter passioned;
Which doen, he backe retyred soft away,
And, passing by, his name discovered,
Ease, on his robe in golden letters cyphered. *Spenser.*

It *beckons* you to go away with it,
As if it some impartment did desire
To you alone. *Shakspeare.*

The queen, fair Fancy, past;
And thro' her rainbow-tinged veil
A glance benignant cast!
Then, *beck'ning* to a secret glade,
'Come see,' she cried, 'the train,
Who own beneath this mystic shade
My visionary reign.' *Bishop.*

Anon all this rout was brought in silence,
And I by an usher brought to presence
Of Lucifer; then low, as well as I could,
I kneeled, which he so well allow'd
That thus he *beck'd*, and, by St. Anthony,
He smiled on me well-favour'dly.
Heywood. The Pardoner.

So throng into the memory,
Of calling shapes, and *beckoning* shadows dire,
And aery tongues, that syllable men's names,
On sands and shores and desert wildernesses. *Milton.*

With this his distant friends he *beckons* near,
Provokes their duty, and prevents their fear. *Dryden.*

What *beck'ning* ghost along the moonlight shade,
Invites my steps and points to yonder glade. *Pope.*

When he had raised my thoughts by those transporting airs, he *beckoned* to me, and, by the waving of his hand, directed me to approach. *Addison.*

All ether softening, sober evening takes
Her wonted station on the middle air,
A thousand shadows at her *beck*. First, this
She sends on earth, then that of deeper dye
Steals soft behind; and then a deeper still,
In circle following circle, gathers round,
To close the face of things. *Thomson. Summer.*

They had not spoken; but they felt allured
As if their souls and lips each other *beckon'd*,
Which being join'd like swarming bees they clung,
Their hearts the flowers from whence the honey sprung. *Byron.*

BE'CLAP. Be and clap. See CLAP.

BE'CLAWE. Be and claw. See CLAW.

BE'CLIP. Be and clip. See CLIP.

BE'CLOUD. Be and cloud. See CLOUD.

BE'COME, BECOM'ING, *n. adj.* BECOMINGLY. } *Be* and *come*, Ang.-Sax. *cuman*; Dutch *komen*; Germ. *kommen*; Swed. *komma*. *Becuman, ingredi, occurrere, pervenire, supervenire*; to go; to enter in; to meet with; to come or attain to; to come upon suddenly: it likewise signifies to convene; to concur; and consequently to be convenient or concurrent; hence arises to befit; decent; appropriate; suitable; and further, graceful; ornamental. See ENCY. MET.

The Lord God breathed into his nostrils the breath of life, and man *became* a living soul. *Genesis*, ii. 7.

And unto the Jews I *became* a Jew, that I might gain the Jews. 1 *Corinth.* ix. 24.

Upon that other side Damian
Becomin is the sorwefullest man
That ever was. *Chaucer.*

So soone as she was entred, round about
Shee cast her eies, to see what was *become*
Of all those persons which she saw without:
But lo! they streight were vanisht all and some;
Save that same woefull lady; both whose hands
Were bounden fast, that did her ill *become*,
And her small waste girt rownd with yron bands
Unto a brasen pillour, by the which she stands. *Spenser.*

She to her sire made humble reverence,
And bowed low, that her right well *became*,
And added grace unto her excellence.
Id. Faerie Queene.

I cannot joy, until I be resolv'd
Where our right valiant father is *become*. *Shakspeare.*

If I *become* not a cart as well as another man, a plague on my bringing up. *Id.*

I would I had some flowers o' th' spring that might
Become your time of day; and your's and your's,
That wear upon your virgin branches yet
Your maidenheads growing. *Id.*

Yet be sad, good brothers;
For, to speak truth, it very well *becomes* you. *Id.*

Your dishonour
Mangles true judgment and bereaves the state
Of that integrity which should *become* it. *Id.*

What is then *become* of so huge a multitude, as would have overspread a great part of the continent. *Raleigh.*

But I should ill *become* this throne, O peers!
And this imperial sovreignty adorn'd
With splendour, arm'd with power, if aught propos'd
And judg'd of public moment, in the shape
Of difficulty or danger, could deter
Me from attempting. *Milton.*

Perplex'd with thoughts, what would *become*
Of me, and all mankind? *Id.*

The first hints of the circulation of the blood were taken from a common person's wondering what *became* of all the blood that issued out of the heart. *Graunt.*

What will *become* of me then? for, when he is free, he will infallibly accuse me. *Dryden.*

Why would I be a queen? because my face
Would wear the title with a better grace;
If I *became* it not, yet it would be
Part of your duty then to flatter me. *Id.*

Wicherly was of my opinion, or rather I of his; for it *becomes* me so to speak of so excellent a poet. *Id.*

Their discourses are such as belong to their age, their calling, and their breeding; such as are *becoming* of them, and of them only. *Id.*

What *became* of this thoughtful busy creature, when removed from this world, has amazed the vulgar, and puzzled the wise. *Rogers.*

He utterly rejected their fables concerning their gods, as not *becoming* good men, much less those which were worshipped for gods. *Stillingfleet.*

Of thee, kind boy, I ask no red and white
To make up my delight,
No odd *becoming* graces,
Black eyes, or little know-not-whats, in faces. *Suckling.*

BECSANGIL, the ancient Bithynia, a province of Natolia in Asia; bounded on the north by the Black Sea, on the west by the sea of Marmora, on the south by Natolia Proper, and on the east by the province of Boli. The principal town is Bursa.

BECSKERECK, NAGY, i. e. GREAT, a market town of Hungary, in the county of Torontal, the capital of the circle of that name. It stands on the Bega, and has a salt office, and the right of choosing its own magistrate.

BECSKERECK, KIS, i. e. LITTLE, a small town of Hungary, in the county of Temeswar, circle of St. Andrew.

BECTASH, preacher to Amurath I. sultan of the Turks, and founder of the sect of Bectasse. He is also said to have given rise to the order of Janissaries.

BECTASSE, a sect of religious among the Turks. All the janissaries belonging to the Porte are of this sect. The habit of the bectasse is white: on their heads they wear caps of several pieces; with turbans of wood twisted like ropes. They observe constantly the hour of prayer, which they perform in their own assemblies, and make frequent declarations of the unity of God.

BECURL, *be* and *curl*. See CURL.

BED, *v.* & *n.*
BED'DING,
BED'CHAMBER,
BED'CLOTHES,
BED'FELLOW,
BED'MAKER,
BED'MATE,
BED'POST,
BED'STAFF,
BED'PRESSER,
BED'STEAD,
BED'STRAW,
BED'SWERVER,
BED'RID,
BED'RITE,
BED'TIME,
BED'WARD,
BED'WORK.

A large family, from one etymon; Ang. Sax. *beddian*; Germ. *bedden* or *betten*, *sternere*, bed; that is, says the etymologist, in the Ency. Met., *stratum*, is the past participle of this verb; therefore we speak of a garden-bed, a bed of gravel, &c. In the Ang.-Sax. *bedde* is sometimes used for a table. See Mark iv. 21. From the strata of earth where things are deposited, &c., and in which, till disturbed, they repose; the word has been to whatever bears applied and supports; to whatever is spread, or laid out, or prepared, for the purpose of bearing and supporting. Thus it is more generally applied to a lodging; to something made to sleep on; hence, figuratively, it is used for marriage. To *bed* is to go to bed with; to place in bed; to make partaker of the bed; to sow or plant in earth; to lay in a place of rest or security; to lay in order; to stratify; to cohabit. The various derivatives explain, by their application, their own meaning.

To *bed* he goth, and with him goth his wife,
As any jay she lyht was and jolif. *Chaucer.*

Flora now culleth forth eche flower,
And bids make readie Maia's bower,
That newe is upryst from *bedd*. *Spenser.*

There be no inns where meet *bedding* may be had, so that his mantle serveth him then for a *bed*. *Id.*

On my knees I beg,
That you'll vouchsafe me raiment, *bed*, and food.
Shakspeare.

ENO. Mine, and most of our fortunes, to night, shall be—drunk to *bed*. *Dryden, Ant. and Cleop.*

IROS. There's a palm, presages chastity, if nothing else.

CHAR. Even as the overflowing Nilus presageth famine.

IROS. Go, you wild *bedfellow*, you cannot soothsay. *Id.*

And as the sleeping soldiers in th' alarm,
Your *bedded* hairs, like life in excrements,
Start up and stand on end. *Id.*

She's a *bedswerver*, even as bad as those
That vulgars give the boldest titles to. *Id.*

They have married me:
I'll to the Tuscan wars, and never *bed* her. *Id.*

For he will be swine drunk, and in his sleep he does little harm, save to his *bedclothes* about him. *Id.*

He loves your people,
But tie him not to be their *bedfellow*. *Id.*

Misery acquaints a man with strange *bedfellows*. *Id.*

This sanguine coward, this *bedpresser*, this horseback breaker, this huge hill of flesh. *Id.*

Lying not erect, but hollow, which is in the making of the *bed*; or with the legs gathered up, which is in the posture of the body, is the more wholesome. *Bacon.*

There was a doubt ripped up, whether Arthur was *bedded* with his lady. *Id.*

Herbs will be tenderer and fairer if you take them out of *beds* when they are newly come up, and remove them into pots with better earth. *Id.*

She was publickly contracted, stated as a bride, and solemnly *bedded*; and, after she was laid, Maximilian's ambassador put his leg, stript naked to the knee, between the espousal sheets. *Id.*

Let coarse bold hands, from slimy nest,
The *bedded* fish in banks outwrest. *Donne.*

So high as heav'd the tumid hills, so low,
Down sunk a hollow bottom, broad, and deep,
Capacious *bed* of waters. *Milton.*

Rigour now is gone to *bed*,
And advice with scrupulous head. *Id.*

George, the eldest son of this second *bed*, was, after the death of his father, by the singular care and affection of his mother, well brought up. *Clarendon.*

He was now one of the *bedchamber* to the prince. *Id.*

They were brought to the king, abiding them in his *bedchamber*. *Hayward.*

First, with assiduous care from winter keep,
Well fother'd in the stalls thy tender sheep;
Then spread with straw the *bedding* of thy fold,
With fern beneath, to fend the bitter cold. *Dryden.*

Arcite return'd, and, as in honour tied,
His foe with *bedding* and with food supply'd. *Id.*

Those houses then were caves, or homely sheds,
With twining oziers fenc'd, and moss their *beds*. *Id.*

See hoary Albula's infected tide
O'er the warm *bed* of smoaking sulphur glide. *Addison.*

What charming *bedfellows*, and companions for life, men choose out of such women. *Id.*

I was deeply in love with my *bedmaker*, upon which I was rusticated for ever. *Id. Spectator.*

I came the next day prepared, and placed her in a clear light, her head leaning to a bedpost, another standing behind, holding it steady. *Wiseman's Surgery.*

Chimnies with scorn rejecting smoke;
Stools, tables, chairs, and *bedsteads* broke. *Swift.*

Bed may be more accurately defined a convenience for stretching and composing the body on, for ease, rest, or sleep; consisting, generally, of feathers enclosed in a ticken case, and supported by a frame work, called the bedstead, standing on pedestals. Mr. Whittaker in his history of Manchester observes, that it was universally the practice, in the first ages, for mankind to sleep upon the skins of beasts. It was originally the custom of the Greeks and Romans, as well as of the ancient Britons, before the Roman Invasion. These skins were spread on the floor of their apartments. Afterwards they were changed for loose rushes and heather: the Welsh a few years ago lay on the former, and many of the Highlanders of Scotland sleep on the latter to this day. In process of time, the Romans suggested to the interior Britons the use, and the introduction of agriculture supplied them with the means, of the neater convenience of straw beds. The beds of the Roman gentry at this period were generally filled with feathers, and those of the inns with the soft down of reeds. But for many ages the beds of the Italians had been constantly composed of straw; it still formed those of the soldiers and officers at the conquest of Lancashire; and from both, our countrymen learnt their use. But it appears to have been taken up only by the gentlemen, as the common Welsh had their beds thinly stuffed with rushes as late as the conclusion of the twelfth century; and with the gentlemen it continued many ages afterwards. Straw was used even in the royal chambers of England as late as the close of the fifteenth century.

In the Highlands heath is generally used as bedding even by the gentry; and a heath bed has been celebrated by travellers as a peculiar luxury, superior to that of down. In France and Italy straw beds are frequent to this day. But after the above period, beds were no longer suffered to rest upon the ground. The better mode, that had anciently prevailed in the east, and long before been introduced into Italy, was adopted in Britain; and they were now mounted on pedestals. This, however, was equally confined to the higher ranks. Beds still continued on the floor among the common people, and were laid along the walls of their houses, as one common dormitory for all the members of the family.

Bed, in masonry, a course or range of stones; and the joint of the bed is the mortar between two stones, placed over each other.

Bed, in sea language, a flat, thick piece of timber laid under the quarters of casks containing any liquid, and stowed in the ship's hold.

Bed, Dining, lectus triclinaris, or discubitorius, that whereon the ancients lay at meals. The dining or discubitory beds were four or five feet high. Three of these were ordinarily ranged by a square table (whence both the table and the room where they eat, were called triclinium), in such a manner that one of the sides of the table remained open and accessible to the waiters. Each bed would hold three or four, rarely five persons. They were unknown in Rome before the second Punic war: the Romans, till then, sat down to eat on plain wooden benches, in imitation of the heroes of Homer, or, as Varro expresses it, after the manner of the Lacedemonians and Cretans. See Accubation.

Bed of a great Gun; that thick plank which lies immediately under the piece, being, as it were, the body of the carriage.

Bed of a Mortar, with gunners, a solid piece of oak hollowed in the middle, to receive the breech and half the trunnions.

Bed of Corn, is a heap, flat at top, three or four feet high, otherwise called a couch. Corn, in granaries, keeps best in beds.

Bed of Justice, in the ci-devant French customs, a throne upon which the king was seated when he went to the parliament. The king never held a bed of justice but for affairs that concerned the state, and then all the officers of parliament were clothed in scarlet robes.

BEDA, commonly called Venerable Bede, one of our most ancient historians, was born A. D. 672, near Weremouth, in the bishopric of Durham. He was educated by the abbot Benedict, in the monastery of St. Peter, near the mouth of the river Wyre. At the age of nineteen he was ordained deacon, and priest at thirty. About this time he was invited to Rome by Pope Sergius; but it is not certain that he accepted the invitation. In 731 he published his Ecclesiastical History; a work of so much merit, notwithstanding the legendary tales it contains, that it were alone sufficient to immortalise the author. He died A. D. 735, of a lingering consumption, probably occasioned by a sedentary life, and long uninterrupted application to study and literary compositions, of which he left an incredible number. He was buried in the church of his convent at Jarrow; but his bones were afterwads removed to Durham, and deposited in the same coffin with those of St. Cuthbert. Bede was undoubtedly a singular phenomenon in an ignorant and illiterate age. His learning, for the times, was extensive, his application incredible, his piety exemplary, and his modesty excessive. He was universally admired, consulted, and esteemed, during his life; and his writings are deservedly considered as the foundation of our ecclesiastical history. His language is neither elegant nor pure, but perspicuous and easy. All his works are in Latin. The first general collection of them appeared at Paris in 1544, in three volumes, folio. They were printed again at the same place in 1554, in eight volumes. They were also published in the same size and number of volumes at Basil, in 1567, reprinted at Cologne in 1613, and at the same place in 1688. Besides this general collection, there are several of his compositions, which have been printed separately, or amongst the collections of the writings of ancient authors; and there are several MSS. ascribed to him, which are preserved in the libraries of Oxford and Cambridge.

BE'DABBLE. Dabble, with the prefix be. See Dabble.

BE'DAFF. Daff, and the prefix be. See Daff.

BE'DAGGLE. Daggle, and the prefix be See Daggle.

BEDAH, or Vedah, also called Battas or Waddas, a wild people inhabiting the mountains and forests in the interior of Ceylon. See Ceylon and Batta.

BEDAL, a market town in the north riding of Yorkshire, through which passes a Roman causeway to Richmond, Barnard Castle, &c. The parts adjacent are noted for hunting and road horses. It has a market on Tuesday: and is six miles from North Allerton, eight from Richmond, and 220 from London.

BEDALACH, in the materia medica, a name given by some writers to the gum bdellium; but particularly to that kind of it which was brought from Arabia, and was of a yellowish color, like wax.

BEDALGENSE, a name given by the Arab astronomers to a fixed star of the first magnitude, in the right shoulder of Orion. It is of a ruddy color, by which it is easily distinguished.

BEDAMUNGALUM, a town of the Mysore, Hindostan, near the river Palar, which is here about forty feet wide. It was formerly a considerable place, but is now reduced. Salt abounds throughout the neighbouring country, which consists of poor black soil, and low wet grounds. Long. 78° 24′ E., lat 12° 58′ N.

BEDAN, a deliverer, and, probably, a judge of the Israelites, mentioned by the prophet Samuel (1 Sam. xii. 11.), in his expostulation with the people; but not mentioned particularly elsewhere, in Scripture. Some suppose him to be the same with Barak; others with Samson, who was Ben Dan, the son of Dan; others, that he was Jair, and named Bedan after his ancestor.

BEDARIDES, a town of France, near the Rhone, formerly in the papal county of Venaissin; but, since the revolution, included in the department of Vaucluse. The population is about 1700, and the environs are fertile and beautiful. Five miles north of Avignon.

BE′DARK. Be and dark. See Dark.

BEDARRIEUX, or Bec du Rieux, a town of France, on the river Orbe, in the department of the Herault. It has 3340 inhabitants, with manufactures of drugget and woollen stuffs, which are exported as far as into Germany. Thirty-three miles west of Montpelier. Long. 3° 15′ E., lat. 43° 57′ N.

BE′DASH Be and dash. See Dash.

BE′DAW. Of uncertain etymology. Awake on the watch. See Adaw, to watch over, to keep under.

BE′DAUB. Be and daub. See Dabble and Daub.

Bedchamber, Lords of the, in the British court, are twelve noblemen who attend in their turns, each a month; during which time they anciently lay in the king's bedchamber, and waited on him when he dined in private.

BEDDAPOLLAM, a town of Hindostan, in the Mysore, fourteen miles west of Gurramconda.

BEDDER, Beder, or Bedr, a valley of Arabia, where the tribe of Koreish was defeated by Mahomet in the first year of the Hejira, A. D. 622. Distant forty miles from Mecca, and twenty from Medina.

BEDDIJAM, a town of Ceylon, eighty miles south of Candy.

BEDDINGTON, a village of Surry, between Carshalton and Croydon, adjoining which is Beddington Park, where queen Elizabeth is said to have resided. The parish church is an ancient Gothic building, with stalls in the aisle like a cathedral.

BEDDOES (Thomas), M. D. a physician of considerable celebrity, was born at Shifnal, Salop, in the year 1760. He was educated at Bridgenorth, Oxford, and Edinburgh. In 1786 he took his doctor's degree, and was appointed professor of chemistry at Oxford; an appointment which his political opinions, on the breaking out of the French Revolution, did not permit him to retain. In 1793 he removed to Bristol, where he began a series of medical and physiological researches, experiments, lectures, &c.; which might have established for him a lasting reputation. He was capable of great things but aimed at too much. Publications upon a variety of subjects political, scientific, and medical, came from his pen in rapid succession, until 1808, when he was seized with a liver complaint, which proved fatal in the course of that year. Of his numerous works, the principal are; 1. A Translation of Spallanzani's Dissertations on Natural History, 1784; reprinted in 1790. 2. A Translation of Bergman's Essay on Elective Attractions, 1785. 3. Translations of Scheele's Chemical Essays, 1786. 4. Chemical Experiments and Opinions, extracted from a work published in the last century, &c.

BEDE. See Beda.

BE′DEAD. Be and dead. See Dead.

BE′DECK. Be and deck. See Deck.

BEDELL (Dr. William), a learned prelate, born at Black Notley, in Essex, in 1570, and educated at Emanuel College, Cambridge, where he obtained a fellowship in 1593. After being some time minister of St. Edmund's Bury, he went to Venice, as chaplain to Sir Henry Wotton, the English ambassador, and continuing eight years in that city, contracted an intimate acquaintance with the famous Father Paul; during this time he translated the English Common Prayer Book into that language; and drew up an English grammar for Father Paul, who declared he had learned more from him in divinity than from any one. At his departure Paul presented him with his picture, the MSS. of his History of the Council of Trent, his History of the Interdict and Inquisition, with other literary donations. In 1629 Dr. Bedell obtained the bishopric of Kilmore and Ardagh in Ireland, and applied himself vigorously to reforming abuses. He procured an Irish translation of the common Prayer-Book, which he caused to be read in his cathedral every Sunday. The New Testament having been translated by archbishop Daniel, he patronised a corresponding version of the Old Testament; which was afterwards printed at the expense of the great Mr. Boyle. In 1624 he published a controversial book against the Roman Catholics, which he dedicated to Charles, prince of Wales; and assisted the archbishop of Spalatro in finishing his famous work De Republica Ecclesiastica. When the rebellion broke out in Ireland, in October 1641, the bishop at first did not feel the violence of its effects; for the very rebels had conceived a great veneration for him, and they declared it should be the last Englishman they would dare

out of Ireland. About the middle of December, however, the rebels required him to dismiss the people who had taken refuge with him; and, upon his refusing to do this, they seised him and his family, and carried them prisoners to the castle of Cloughboughter, putting them all except the bishop in irons. After being confined for about three weeks, the bishop and his sons were exchanged for some of the principal rebels; but the worthy prelate died soon after, on the 7th February, 1642, his death being chiefly occasioned, it is said, by this imprisonment. The Irish rebel chiefs, and a large part of their force, accompanied his body to the churchyard.

BE'DELVE, BE'DELVEN. Be and delve. See DELVE.

BEDENGIAN, in botany, a name given by Avicenna and Serapion to the pomum amoris, or love-apple, a sort of fruit used in food by the Italians, and some other nations, and seeming to be the third species of the strychnos, or solanum, mentioned by Theophrastus. The author first describes two kinds of this plant, the one of which occasioned sleepy disorders, and the other threw people who eat of it into madness. After these, which he properly accounts poisonous, he mentions a third, which was cultivated in gardens, for the sake of the fruit, which, he says, is large and esculent. This is certainly the same with bedengian.

BE'DEVIL. Be and devil. See DEVIL.

BE'DEW, BE'DEW. Ang.-Sax. *deawian*, to wet, to moisten.

Both nations shall, in Britaine's royal crowne,
Their diff'ring names, the signes of faction, drowne;
The silver streames which from this spring increase,
Bedew all Christian hearts with drops of peace.
Beaumont. Bosworth Field.

For never, gentle knight, as he of late,
So tossed was in fortune's cruell freakes,
And all the while salt tears *bedeaw'd* the hearers' cheaks. *Spenser.*

What slender youth *bedew'd* with liquid odours,
Courts thee on roses, in some pleasant cave? *Milton.*

Thrice happy he! who, on the sunless side
Of a romantic mountain, forest-crown'd,
Beneath the whole collected shade reclines;
Or in the gelid caverns, woodbine wrought,
And fresh *bedew'd* with ever-spouting streams,
Sits coolly calm. *Thomson.*

May all the youths, like me, by love deceiv'd,
Not quench the ruin, but applaud the doom!
And when thou dy'st, may not one heart be griev'd,
May not one tear *bedew* the lonely tomb! *Hammond.*

Go, my boy, and if you fall, though distant, exposed, and unwept by those that love you, the most precious tears are those with which heaven *bedews* the unburied head of a soldier
Goldsmith. Vicar of Wakefield.

BEDFORD (John, duke of), a younger son of Henry IV., was Shakspeare's 'prince John of Lancaster.' During the reign of Henry V. he took a leading part in the conquest of France; and was, after the death of the king, appointed regent of that country. He displayed great military skill in the battle of Verneuil in 1424. The only blemish in his character is his cruel and unjustifiable treatment of the maid of Orleans. He survived this event about four years, and dying at Rouen, in 1435, was buried in the cathedral of that city. Bedford deserves notice as a patron of the arts. A curious proof of his taste in them is still existing in the Bedford Missal, a small thick folio volume, highly illuminated, described by Mr. Dibdin in his Bibliomania, page 253.

The dukedom of Bedford, now enjoyed by the Russel family, is perfectly distinct from that of this prince. The title has been twice revived since his time.

BEDFORD (Francis Russel, duke of), an illustrious English nobleman, and distinguished agricultulist; was born July 23d, 1765. Upon the death of his grandfather in 1771, he succeeded to the title and fortunes of his family. He received the first rudiments of education, we believe, at Loughborough house, a fashionable preparatory school: from this place he was removed at an early age to Westminster-school, but he did not remain long at this celebrated seminary. Here it was that, in consequence of a blow from a cricket ball, he became subject to an inveterate hernia, which proved the ultimate cause of his premature death. His grace, at the university, applied to his studies with more diligence than most young noblemen, and soon acquired the esteem of his fellow-students, and of those who superintended his conduct. Early in life he manifested a strong predilection for the amusements of the turf, but this was soon weakened (though not destroyed) in consequence of a superior attachment to the more rational pursuits of agriculture. On his first outset in public life he was connected with Mr. Fox, and became a firm and disinterested supporter of the whig principles. It was long before he could so far overcome his natural diffidence as to speak in public; although, in private company, the clearness of his judgment, the solidity of his remarks, and the strength and accuracy of his expression, had decidedly proved that his grace possessed the chief requisites of a distinguished orator. What the persuasions of his friends could not effect, was at length unexpectedly produced by a momentary glow of indignation. In a debate in the house of lords, the duke imagined himself personally alluded to by one of the speakers. He rose and defended himself and his party by a most able and animated reply. From that period he occasionally spoke upon the most important questions that divided the house, and was constantly heard, even by his political adversaries, with the most respectful attention. His eloquence was rather solid and masculine than brilliant and showy; he did not trim up his language with the gaudy flowers of the rhetorician, but always spoke with such accuracy, and dignity of style and manner, as naturally resulted from the profound meditation of an enlarged and cultivated mind.

But the duke of Bedford was not merely eminent as an orator and politician; he deserved much regard as an anxious promoter of agriculcure, and every art subservient to that highly important pursuit. The late Mr. Bakewell was one of his first instructors in the knowledge of cattle; but he soon equalled, if not excelled, his

master, at least in a knowledge of the subject, though not perhaps in success as an improver of the different breeds. His improvements in farming, as well as grazing, were very considerable. His experimental farm consisted of about 3000 acres, and it was in a state of cultivation, before his time, unexampled in this country. In the practice of irrigation his grace was remarkably successful, and he evinced its wonderful effects upon several hundred acres of land. The farmers and graziers for miles round his family seat at Woburn will long remember his grand annual sheep-shearings held there; from which every one returned pleased with the hospitality and affability of the noble duke, and with the prospect of advantage to the agricultural interests of the nation at large, which the premiums here offered were likely to produce. His grace was never married. His death was occasioned by the strangulation of the hernia already spoken of; which was brought on by playing at tennis. He died March 2d, 1802, in his thirty-seventh year.

Bedford, the chief town of Bedfordshire, is a place of great antiquity, supposed to be an ancient Roman station, and by some the Lactidorum of Antoninus; although Camden is of a different opinion, from the fact of its not standing on any of the Roman roads, as also from no Roman coins having been found in the immediate vicinity. It is situated on the river Ouse, ten miles from Olney, and fifty miles north of London; and, according to the census of 1821, contains upwards of 1070 houses, and 5466 inhabitants.

Bedford is supposed to be the Bedicanford of the ancient Saxons, called Bedician Forda, fortress of the Ford, from its fortifications, which commanded the river, and rendered the place almost impregnable. Several ancient battles were fought here, between the Britons and the Saxons, particularly one in 572, the obstinacy of which has been justly celebrated. It has also been the scene of many severe and bloody conflicts with the Danes, and of many other changes and remarkable events, since the extinction of the Danish power. Offa, king of the Mercians, chose this town as his burial place, and his remains were accordingly interred in a small chapel, on the brink of the river; but both the royal deposit and the chapel containing them have been long swept away by a violent inundation. Shortly after the Norman conquest, William Rufus gave the barony of Bedford to Pain de Beauchamp, who built a strong castle, adjoining the town. This place, in 1137, stood a siege against king Stephen and his army, and was afterwards committed to Faux de Brent, a royal favorite. But this gentleman, having fortified it strongly, set the royal power at defiance, and having otherwise rendered himself obnoxious to Henry III. the king, in 1224, marched with an army to reduce him to obedience; and after a siege of two months, which forms one of the most curious details in English history, the place was stormed by four assaults, and taken, the castle was dismantled, the trenches filled up, and of the site on which it stood only a few traces are now visible. Before the conquest, here was a collegiate church, dedicated to St. Paul, which was afterwards removed to the parish of Goldington, about a mile distant. Numerous other religious houses, in the town and suburbs, were founded at an early period, of which scarcely any vestiges remain. A bridge of great antiquity stood over the river, which is hence navigable to the German Ocean; but that edifice being in a state of great decay, was removed in 1813, and a new and handsome one was erected on its site, preserving the communication between the northern and southern divisions of the town. Bedford is generally considered a compact, handsome place, containing the parishes of St. John, St. Mary, St. Cuthbert, St. Peter, and St. Paul. It is governed by a mayor, recorder, aldermen, two chamberlains, and thirteen common council men. It gives the title of duke to the family of Russel, and, as early as 1295, sent two members to parliament, the election of whom is vested in about 1400 voters, consisting of burgesses, freemen, and householders not receiving alms. The town is a borough and corporation by prescription, and the earliest charter is dated in 1166, 100 years after the conquest. Of the five churches three are on the north side of the river, and two on the south. St. Paul's is a very handsome Gothic edifice with a spire. It has a fine organ, a very ancient stone pulpit, and contains an altar tomb with brass figures of Sir William Harpur and his lady, the former of whom, a great benefactor of the town, died in 1574. The dissenters in Bedford are numerous and respectable. There are three Independent chapels, one of which was built as early as 1707, and a second in 1772. The celebrated John Bunyan was one of the pastors of the original meeting-house, which preceded both, from 1671 to 1688, and during the thirty-two years exercise of his ministry in that place and the neighbourhood, suffered twelve years imprisonment, in the course of which he finished his celebrated work entitled The Pilgrim's Progress. A free grammar school was founded here in 1556, by Sir William Harpur, a native of Bedford, who, in the sixteenth century, was elevated to the dignity of lord mayor of London. It was endowed with thirteen acres of land, which, being now let for building, produces an improved rent of £6000 per annum, the surplus of which is applied to other purposes of a charitable nature; £700 is given in small premiums for the apprenticing of children, and £800 is given in marriage portions, of £20 each, to forty poor maidens of the town, with restrictions that the young women must be of good reputation, between the ages of sixteen and fifty, and married within two months after receiving the gratuity. An infirmary, capable of receiving thirty-eight patients, was erected in 1803; towards the building and endowment of which Mr. Whitbread, one of the members of parliament for the borough, gave £8000. A new gaol was erected in 1801, towards which the same gentleman contributed £500. In 1812 was erected an asylum for lunatics. The assizes and sessions of the county are held in the Shire hall, erected in 1753.

The principal manufacture is lace, but in the house of industry an extensive manufactory of

flannel has been established, which has considerably reduced the poor's rates.

The soil in the neighbourhood is singularly productive of good wheat and barley, which are chiefly sent to the markets of Hitchin and Hertford. There are six annual fairs, besides a wool fair, which has been established by the Agricultural Society of the county. There are also two weekly markets; one on Saturday, for corn, and another on Tuesday for cattle. A considerable trade is carried on in coals, timber, and iron, which are brought by the river from Lynn and Yarmouth.

The bailiff of Bedford is a name which the inhabitants of Ely have from time immemorial given to the inundations of the Ouse, the waters of which, after violent rains, frequently overspread the island, so as to suspendall pursuits, and confine the people prisoners till they are abated.

Bedford, a county of the United States, in Virginia, bounded on the north by James river, east by Campbell, west by Botetourt, and south by Franklin county. It is thirty-four miles in length, and twenty-five in breadth. Chalk and gypsum are met with in this county. It is agreeably variegated with hills. The chief town is New London.

Bedford, a large mountainous county of Pennsylvania, bounded on the north by Huntingdon, east by the North mountain, west by the Alleghany mountain,and south by part of Washington and Alleghany counties, in the state of Maryland. It is fifty miles in breadth from north to south, and fifty-four in length from east to west; and is divided into nine townships, viz. Bedford, Woodbury, Hopewell, Dublin, Providence, Belfast, Bethel, Colrain, Cumberland valley, and Londonderry. The chief waters are the Raystown branch of the Juniatta, Wills, and Licking creek. The chief mountains are Wills, Evits, Warriors, Sideling-hill, Dunnings, &c. and a few others of inferior magnitude. The valleys between some of these are extensive, rich, and in many parts well cultivated. Limestone and iron ore are found in many places. This county was purchased from the Indians in 1768 by William Penn, and established in 1771.

Bedford, a post town of Pennsylvania, and capital of the above county, situated on the south side of the Raystown branch of Juniatta river, between two small creeks. The town stands on an eminence, and is embosomed by still loftier hills on all sides; that on the west rising to the altitude of 1300 feet, and that on the east 1100. It is regularly laid out, and contains a brick market-house, a stone jail, a court-house, a brick building for keeping the records of the county, and a bank. The inhabitants are supplied with water from a spring at the distance of half a mile, which is conveyed by wooden pipes to a reservoir in the centre of the town. It was incorporated by an act of the assembly, passed in the winter session of 1795, and is governed similar to Chester. It is ten miles west of Philadelphia. Long. 3° 16′ W., lat. 40° 0′ N.

Bedford New, a sea-port and post town in the county of Bristol, Massachusetts, United States of America, is about fifty-two miles south of Boston, the capital of that province. Seated pleasantly on an arm of the sea, which stretches from Buzzard's Bay, and forms the estuary of the Accushnet river, it commands an extensive prospect, with a spacious and commodious harbour. As late as 1810 Bedford included Fairhaven, on the opposite side of the estuary, which has since been incorporated into a distinct town. Its population, after the above division, was computed at something more than 5000, many of whom are engaged in commerce. The chief buildings are a bank, five places of worship, and a library, besides which there is a considerable academy, for the use of the Society of Friends. The amount of shipping belonging to the port in 1818 was 24,000 tons. The vessels are employed in the whale, cod, and other fisheries, with the exception of a few which trade to Europe and the West Indies. The average value of exports from this port of America has been calculated at 130,000 dollars; the imports are not accurately known. Ship-building is carried on to a considerable extent, and a weekly newspaper is published. The town lies in lat. 41° 38′ N., long 70° 54′ W.

Bedford, a town of the United States in West Chester, county of New York, thirty-five miles N.N.E. of New York. Long. 70° 51′ W.

Bedford, a town of Virginia, 100 miles south-west of Richmond.

Bedford, a town of the United States in the west end of Long Island, New York. Four miles north-west of Jamaica bay, and six east from the city of New York.

Bedford, a township of New Hampshire, in Hillsborough county. It lies on the west bank of the Merrimack, fifty-six miles west of Portsmouth.

Bedford, Cape, a cape on the coast of Labrador, in Davis' straits. Long. 67° 50′ W., lat. 67° N.; also a cape at the north-east extremity of New Holland. Long. 214° 45′ W., lat. 15° 16′ S.

Bedford, New, a town of Massachusetts, in Bristol county. Fifty-eight miles south of Boston. Long. 70° 52′ W., lat. 40° 41′ N.

Bedford Level, an extensive tract of low land, stretching over part of the counties of Suffolk,Norfolk,Huntingdon, Lincoln,Northampton, Cambridge, and the Isle of Ely, including a superficial area of nearly 400,000 acres, or 625 square miles. It appears from various phenomena, noticed by different authorities, that the greater part of this space anciently consisted of dry and cultivated land, although from mismanagement, neglect, or some convulsion of nature, it lost its fertility, and assumed its present appearance. Numerous trees of considerable dimensions, remains of buildings, with other natural and artificial productions, found at various depths below the surface, sufficiently evince, that it could not always have been a morass; although they furnish no means of ascertaining the original causes and steps of its deterioration. Dugdale states, that in draining the isle of Axholme, many oaks, firs, and other trees were found at the depths of three, four, and five feet; the roots were firm in the earth, and the trunks had been evidently burnt down, as the ends were reduced to a kind of charcoal. 'The oaks were lying in multitudes,

and of an extraordinary size, being five yards in compass, and sixteen yards long, and some smaller, of a great length, with a great quantity of acorns, and small nuts near them.' Coincident with the above statement, is the following of Mr. Elstob, in his Historical Account of the Bedford Level, which relates, that 'in 1764, many roots of trees were found near Boston in Lincolnshire, in the position in which they had grown, at the depth of eighteen feet below the thin pasturage of the surface.' But the most remarkable circumstance is, that not only trees, but the foundations of buildings, a smith's forge, with many of his tools, several iron articles, horse-shoes &c. have been found near Boston, at sixteen feet depth in the soil. Tacitus, in his Life of Agricola, states that 'the Britons complained of their hands and bodies being worn out and consumed by the Romans, in clearing the woods, and embanking the fens,' in which he is thought to allude more particularly to the destruction of the forests, which anciently covered a considerable part of the Bedford Level. Henry of Huntingdon, a writer of the time of king Stephen, who reigned from 1136 to 1154, describes this part of the kingdom 'as very pleasant and agreeable to the eye, watered with many rivers which run through it, diversified with many large and small lakes, and adorned with many woods and islands.' William of Malmsbury, who flourished in the reign of Henry II., Stephen's successor, describes this tract of country in the most favorable terms, and mentions with astonishment the size of the trees, by which many parts of it were adorned. This statement forms a singular coincidence with those already given, and is corroborated by facts and evidences yet remaining, which furnish, perhaps, the best illustration of this singular and interesting subject.

It is evident, from the above testimonies, that the inundation, by which this beautiful country was converted into the present morass, must have happened after the period of the latter historian, although the precise circumstances which led to it are not determined. This is certain, that the country was completely overflowed, and that it was rendered almost impassable, even for boats, by the sedge, reeds, and mud, with which it was covered, while the putrid effluvia, arising from the stagnant waters, destroyed the health of the inhabitants.

The reign of Edward I. was distinguished by an unsuccessful effort to drain these fens, and several succeeding attempts, in the reigns of Henry VI. and Charles I., after involving considerable expenses, were alike unfortunate. At length, in the year 1634, Francis, earl of Bedford, in conjunction with thirteen gentlemen, undertook the Herculean task, and to a considerable length succeeded; whence the whole of this farming district was called after his name. As a considerable part of the estate of this nobleman consisted of possessions in the vicinity of this marsh, which had been granted to his ancestor on the dissolution of the monasteries, by Henry VIII; he prosecuted the work with the greater assiduity, on the promise of having 95,000 acres assigned him in case of a successful accomplishment of his enterprise. The king granted an immediate charter of incorporation, and within three years and a-half from the before mentioned period, the public surveyor, at the instance of the commissioners, set out the land. The right of this corporation was afterwards opposed, and the earl dispossessed of the reward of his services; but the civil wars giving a new direction to the schemes of political enterprise, William Duke of Bedford was, in 1649, restored to the possession of his rightful patrimony, and under the patronage of a new act, operations were continued upon an extensive scale; and in 1653, after an expense of £400,000, the level was thought to be fully drained, and the original grant was finally confirmed. The new territory was afterwards (for the better regulation of property), divided into three districts, viz. the northern, middle, and southern. A surveyor was appointed for each of the former, and two for the latter; numerous contentions, litigations, charters, and laws, have nevertheless issued; for further information upon which we refer the reader to the Beauties of England and Wales, vol. ii. and Elstob's Historical Account of the Bedford Level. Notwithstanding all that has been done, much fine land remains undrained in this part of England; and, in the winter season, is subject to frequent inundations. It is the haunt of vast flocks of water fowl, which are taken in considerable numbers. As many as 3000 couple are often sent to the London markets in one week, from a single decoy, in the neighbourhood of Ely.

BEDFORDSHIRE, a small inland county of England, bounded on the north and north-west by Northamptonshire, on the east by the counties of Huntingdon, Cambridge, and Hertford, and on the west by those of Buckingham and Northampton. Its limits are winding and irregular, and the only natural ones are the Ouse, for a short space on the east and west, and a small rivulet on the south-west border. Its form is nearly oval; it is thirty-six miles in extreme length, from eighteen to twenty-two in breadth, and 145 in circumference.

The total of land in this county has been variously calculated. The report of the Board of Agriculture states the superficial area at 307,200 acres. The returns to parliament, relative to the poor's rates, make it 275,200 acres; but Dr. Becke, in his Observations on the Income Tax, gives the content at 293,059 acres; whilst the Population Returns of 1821 state the area at 463 square miles, which is rather more than the mean of the three preceding numbers, and is founded upon the Trigonometrical Survey of England and Wales. According to one, we believe, of the most correct authorities, the superficial content of land in Bedfordshire is computed at 296,320 square acres, of which 80,000 are in a course of tillage, and 168,000 employed in pasturage. This populated area includes 124 parishes, with ten market towns, in which are 13,640 houses, and upwards of 71,000 inhabitants, of whom 4155 families are employed in commerce and manufactures, and 9431 in agriculture. It is in the Norfolk circuit, province of Canterbury, and bishopric of Lincoln, and is divided into nine hundreds, viz. Barford, Biggleswade, Clifton,

Flitt, Manshead, Redborne, Stodden, Willey, and Wixamtree. Its rivers are the Ouse, the Ivel, the Lea, and the Ouzel, together with a few others of inferior note, which come more properly under the denomination of streams. The Ouse is made navigable to Bedford, and divides the county into two parts. Nearly the whole of Bedfordshire lies upon the eastern side of the grand ridge, which separates the waters which flow into the German Ocean from those which pour themselves into the Irish Sea: its general inclination is therefore towards the east, and in that direction its principal rivers flow.

The face of the county is generally varied with small hills and valleys, few of which aspire to the height of mountains. There are, nevertheless, some of a bolder description. The Chiltern hills, composed of a vast mass of chalk and flint stones, lie along the southern border, and form a lofty range, which, rising to an unusual altitude, and irregularly projecting over the valleys, gives the whole landscape a remarkable appearance. The clay hills are stretched over the northern part, and a ridge of sand hills enters the county from the west, in a direction towards the north-east. From the south-east corner to the middle of the county runs a line of good dairy land; the western side is, for the most part, flat and sandy. The north and east portions have a deep soil, which produces large crops of corn, and is generally well wooded. The alluvial soils, which prevail in Bedfordshire, generally consist of yellow and dark colored clays, which are diversified with tracts of chalk and sand. On the south of Luton and Dunstable particularly, the upper stratum is chalk, blended with numerous layers of flints and silicious earth, which is succeeded by hard chalk alone. The mineral productions of the county are limestone, coarse marble, and some coal. The fuller's earth, which is found so plentifully, is a kind of mixed clay, chiefly obtained in the neighbourhood of Woburn, and is of great use in cleansing woollen goods. Mineral springs are also found in different parts of the county, although they have not acquired much celebrity. The chief are those of Barton, Bedford, Bletsoe, Blunham, Bromham, Bushmead, Clapham, Cranfield, Holcot, Milton Ernest, Odell, Pertenhall, Riseley, Silsoe, Turvey, and Wrest Garden. Some of these are saline, and others chalybeate, whilst several have not been yet analysed.

The climate of Bedfordshire, from its situation as an inland county, is of a medium temperature and moisture. From meteorological observations, made at Leighton-Buzzard, for four years, ending with 1804, it appeared that the mean monthly height of the barometer was 29°52 inches; that of the thermometer, with a northern aspect, and in the open air, observed at eight o'clock in the morning, was 47° 2. The average quantity of rain per month was 1,93 inches, and the evaporation 1'05. Thus, by multiplying these numbers by 12, we have 23·16 and 12·6, the former of which is little more than the average of London. The most prevalent wind observed during this period was the south-west. Upon the whole, this county does not appear to be remarkably salubrious, since, from the late returns of the population, fewer instances of longevity were found, in proportion to the number of inhabitants, than in many others of the united kingdom.

This county has never been remarkable for the extent of either its commerce or manufactures. The most general employment is the making of lace, and preparing straw-plat for the manufacture of hats, bonnets, baskets, toys, mats, &c. The market-towns, for the promotion of internal commerce, are, Bedford, Ampthill, Dunstable, Biggleswade, Leighton-Buzzard, Luton, Potton, Shefford-Tuddington, and Woburn. Four members are sent from this county to parliament, in which the Russel, Osborne, and Whitbread families have a preponderating influence.

When the Romans landed in Britain, A. A. C. 55., this county was included in the district inhabited by the Catieuchlani, whose chief, Cassibelinus, headed the force of the whole island against Cæsar, and the year following was totally defeated. In 310 the emperor Constantine divided Britain into five Roman provinces, when this county was included in the third division, called Flavia Cæsariensis; in which state it continued 426 years, when the Romans quitted Britain. A severe battle was fought at Bedford in 571 or 580, between the Saxons and the Britons. At the establishment of the kingdom of Mercia (one of the divisions of the Saxon heptarchy), it was considered as part of that kingdom; and so continued from 582 to 827, when, with the other petty kingdoms of the island, it became subject to the West Saxons, under Egbert, and the whole was named England. In 889 Alfred held the sovereignty, when England was divided into counties, hundreds, and tythings, and Bedfordshire first received its present name.

In the tenth and eleventh centuries, this county was the seat of various conflicts with the Danes, which terminated in the final expulsion of the invaders. Many castles had been erected during these periods, most of which were demolished by king John, during his progress to the north, except that of Bedford, which was dismantled by Henry III.; after which the county is noted for few remarkable occurrences till the year 1642, when it entered into an association against Charles I.

The remains of both Saxon and Gothic architecture are to be seen in several of the churches, as also a few specimens of stained glass in their windows. Roman antiquities, also, are frequently discovered in the county. It is intersected by three Roman roads, and interspersed with military stations. A fortification, called Totternhoe Castle, is seen on the brow of a hill, about two miles from Dunstable, and consists of a lofty circular mound, with a slight vallum around its base; at a distance from which is a much larger one, of irregular form. The other remarkable remains are, a Roman station at Sandy near Potton, (the Magiovinum of Antoninus,) by others supposed to be the ancient Salenæ, containing thirty acres, where many urns, coins, &c. have been dug up. Another at Madining-bowre, or Maidenbower, one mile from Dunstable, containing about nine acres, which Camden supposes to have been a Roman station, from the coins of the emperors having been frequently dug up there, and calls it Magintum. Leighton-Buzzard is

supposed to have been a Roman camp, and another is at Arlesey near Shefford, and a Roman amphitheatre may be traced near Bradford Magna. The Roman road, Icknield-street, crosses this country; entering at Leighton-Buzzard, from whence it passes Dunstable, where it inclines northward over Warden hills to Baldock in Hertfordshire. The Watling-street enters this county near Luton from St. Albans, passes a little north of Dunstable, where it crosses the Icknield-street, and from thence to Stoney Stratford in Buckinghamshire. A Roman road also enters near Potton, passes on to Sandy, and from thence to Bedford, where it crosses the Ouse, and proceeds to Newport Pagnell in Buckinghamshire. The following antiquities in this county are well worthy of attention: Bedford Bridge and Priory; Chicksand Abbey, near Shefford; Dunstable Priory, near Luton; Eaton Park House, or Eaton Bray; Five Knolls, near Dunstable; Newnham Priory, near Bedford; Northill church, three miles from Biggleswade; Summeris Tower, near Luton; Warden Abbey, near Shefford; Woburn Abbey; and Woodhill Castle, or Oddhill Castle, near Harwood.—John duke of Bedford, third son of Henry IV. king of England, commanded the English army in France in 1422; and, after making himself master of that kingdom, died at Rouen in 1435, where a handsome monument was erected to his memory. One of the courtiers of Charles VIII. having advised him to destroy it, the king answered, 'Let him rest in peace, who, when living, made all the French tremble.'

BEDIM, be and dim. See DIM.

BEDIZEN, be and dizen. See DIZEN.

BED'LAM, *n.* & *adj.* } Corrupted from
BED'LAMITE. } *bethlehem*, the name of a religious house in London, converted afterwards into an hospital for the mad and lunatic. The adjective, in the sense of mad, is applied to things as well as persons.

Let's follow the old earl, and get the *bedlam*
To lead him where he would; his roguish madness
Allows itself to any thing. *Shakspeare.*

One morning very early, one morning in the spring,
I heard a maid in *Bedlam*, who mournfully did sing,
Her chains she rattled on her hands, while sweetly thus sung she,
I love my love, because I know my love loves me.
Prior.

If wild ambition in thy bosom reign,
Alas! thou boast'st thy sober sense in vain;
In these poor *bedlamites* thyself survey,
Thyself less innocently mad than they.
Fitzgerald.

At this rate we are wonderfully mistaken when we speak of Don Quixote as a madman, and of Leonidas, Brutus, Wallace, Hampden, Paoli, as wise, and good, and great! The case it seems is just the reverse; these deserve no other names than that of raving *bedlamites*. *Beattie. Don Quixote.*

BEDLIS, or BETLIS, a strong town of Asiatic Turkey in the Pachalic of Ván, lat. 38° 34′ N., and long. 42° 35′ E. It is placed in a narrow defile, defended by a triangular castle, between two lofty mountains, and traversed by the river Kuzur, which joins the Júí Rubát below. Here are many public buildings deserving notice, and among them several medresehs, or colleges, which, together with the list of eminent writers who have been natives of this place, show that learning was much encouraged by its former rulers. The castle contains 300, and the town about 5000, houses within its precincts. This fortress submitted to the Mussulman arms under the caliphate of Omar (A. D. 647), and was conquered by the Turks under Sultán Murád IV. (A. D. 1634). Its inhabitants are Ruzegis, a tribe of Kurds and Armenians, in nearly equal proportions, who amounted in the middle of the seventeenth century to about 80,000. The strength of its position has often enabled them to maintain a virtual independence of the Porte.

BEDLOE (William), who assumed the title of captain, was an infamous adventurer of low birth, in the reign of Charles II. He had travelled over great part of Europe under different names and disguises, as a man of rank and fortune. Encouraged by the success of Oates, he gave an account of Godfrey's murder, and added many circumstances to the narrative of the former. These villains had the boldness to accuse the queen of entering into a conspiracy against king Charles I's life. A reward of £500 was voted to Bedloe by the Commons. He is said to have asserted the reality of the plot on his death-bed: but it abounds with absurdity, contradiction, and perjury. He died at Bristol, August 20th, 1680. Giles Jacob informs us, that he was author of a play, called The Excommunicated Prince, or the False Relict, 1679. The printer of it having, without the author's knowledge, added a second title, and called it The Popish Plot in a Play, greatly excited the curiosity of the public, who were, however, much disappointed, when they found the plan of the piece to be founded on a quite different story. Anth. Wood, however, asserts that this play was written partly, if not entirely, by Thos. Walter, M. A. of Jesus College, Oxford.

BED-MOULDING, in architecture, usually consists of an ogee, a list, a large boultine, and another list under the coronet.

BEDNORE, or BIDDANORE, a district in the north-west extremity of the Mysore, Hindostan, on the summit of the western Ghauts. From the elevation of the country, the season is a month later here than on the sea coast. The exports consist of cattle of small size, pepper, betel-nut, cardamoms, sandal-wood; the imports are salt, rice, cocoa-nuts, oil, turmeric, and cotton cloths. When overrun by Hyder, in 1762, the Bednore dominions extended over the maritime province now named Canara, and to the east over a tract of open country, extending to Sunta, Bednore, and Hoolukera, within twenty miles of Chittledroog.

BEDNORE, or BIDDANORE, a town of Hindostan, capital of the district of that name, 452 miles south-east of Bombay, and 187 north-west of Seringapatam. It was taken by the British in 1783, and retaken soon after by Tippoo Sultan; but on his defeat and death, in 1799, the town and its suburbs became subject to the British. It is said to have been once a well-fortified and magnificent city, containing 20,000 houses: at the time of the sultan Tippoo's death, it con-

sisted of about 1500 houses, besides huts. When taken by Hyder, in 1763, it was eight miles in circumference, and it is said the plunder actually realised amounted to twelve millions sterling. He afterwards changed its name to Hydernagur.

BEDOTE, To doat upon, to pet, to befool; obsolete.

To *bedote* this I ween was their interest.

BEDOWINS, or Bedwins, the nomade inhabitants of the Arabian and African deserts, whose name, derived from the Arabic bedowí, 'a native of the desert,' answering to the Arabes scenitæ of the ancients, or Arabs dwelling in tents, agrees with their mode of living in encampments, pitching their movable habitations wherever they can find pasturage, and changing their site as often as plunder, famine, and other circumstances may require.

They are the purest and best preserved of all the Arab tribes, tracing their origin to the twelve tribes of Ishmael, mentioned in Gen. xvi. 11, xxv. 12; and are the lineal descendants of those ancient Arabs mentioned by the Greek historians, whose site they occupy, and whose customs, manners, prejudices, and superstitions, they rigorously preserve. These people have been frequently confounded by ecclesiastical writers with the Edomites, Amalekites, and other neighbouring nations to the Hebrews; but it is evident that the latter nations, although branches derived from the same stock, differ in many important points from the genuine Bedowins.

Dwelling in the interior of those vast deserts which extend from the confines of Persia to Morocco, the true Arabians have had little foreign intercourse, and have never mixed with surrounding nations, either by conquest or capture; few emigrations occurred even at the epoch of the revolution effected by Mahomet: on which account, the prophet, in his Koran, is continually styling the Arabs of the desert infidels and rebels; nor has the lapse of time since that period effected any remarkable change in their national character. They still answer the description given by the angel in prophecy, 'wild men, whose hand is against every man, and every man's hand against them;' and their mode of living, at the present day, is precisely the same as that mentioned by Diodorus Siculus, nearly 2000 years ago. It has, indeed, been thought remarkable, that Diodorus should observe silence with respect to their predatory habits; but it is highly probable that, at that time, they were so much restrained by the vigilance of the Roman government, as rarely to have an opportunity of exhibiting that distinguishing feature of their character.

The wandering life of these people arises in a great measure from the site they occupy. To paint to himself these deserts (says Mr. Volney,) the reader must imagine a sky almost perpetually inflamed, and without clouds, immense and boundless plains, without houses, trees, rivulets, or hills, where the eye frequently meets nothing but an extensive and uniform horizon, like the sea, though in some places the ground is uneven and stony. Naked as it is almost invariably on all sides, the earth presents nothing but a few wild plants thinly scattered, and thickets, whose solitude is rarely disturbed but by antelopes, hares, locusts, and rats. Such is the nature of nearly the whole country, which extends 600 leagues in length and 300 in breadth, stretching from Aleppo to the Arabian Sea, and from Egypt to the Persian Gulf. It must not, however, be imagined that the soil in so great an extent is everywhere the same; it varies considerably in different places. On the frontiers of Syria, for example, the earth is in general fat and cultivable, nay even fruitful. It is the same also on the banks of the Euphrates: but in the internal parts of the country, and towards the south, it becomes white and chalky, as in the parallel of Damascus; rocky, as in the Tih and the Hedjaz; and a pure sand, as to the eastward of Yemen. This variety in the qualities of the soil is productive of some minute differences in the condition of the Bedowins. For instance, in the more sterile countries, that is, those which produce but few plants, the tribes are feeble and very distant; which is the case in the desert of Suez, that of the Red Sea, and the interior of the great desert called Najd. Where the soil is more fruitful, as between Damascus and the Euphrates, the tribes are more numerous, and less remote from each other; and, lastly, in the cultivable districts, such as the pachalics of Aleppo, the Hauran, and the neighbourhood of Gaza, the camps are frequent and contiguous. In the former instances, the Bedowins are purely pastors, and subsist only on the produce of their herds, and on a few dates and fresh meat, which they eat either fresh or dried in the sun and reduced to a powder. In the latter, they sow some land, and add cheese, barley, and even rice, to their flesh and milk diet. In those districts where the soil is stony and sandy, as in the Tih, the Hedjaz, and the Najd, the rains make the seeds of the wild plants shoot, and revive the thickets, ranunculi, wormwood, and kali. They cause marshes in the lower grounds, which produce reeds and grass, and the plain assumes a tolerable degree of verdure. While the rains continue, the soil produces great abundance both for the herds and their masters; but on the return of the heats every thing is parched up, and the earth, converted into a gray and fine dust, presents nothing but dry stems as hard as wood, on which neither horses, oxen, nor even goats can feed. Such is the situation in which nature has placed the Bedowins, to make of them a race of men equally singular in their physical and moral disposition.

The peculiarities of the Bedowin Arabs are so striking, that their neighbours the Syrians regard them as extraordinary beings, especially those tribes which dwell in the depths of the deserts, such as the Anasa, Kaibar, Tai, and others, which never approach the towns. When, in the time of Sheik Daher, some of their horsemen came as far as Acre, they excited the same curiosity there as a visit from the savages of America would among us. Everybody viewed with surprise these men, who were more diminutive, meagre, and swarthy, than any of the known Bedowins. Their withered legs were only composed of tendons, and had no calves. Their bellies seemed to cling to their backs, and their hair was

frizzled almost as much as that of the negroes. They, on the other hand, were no less astonished at every thing they saw; they could neither conceive how the houses and minarets could stand erect, nor how men ventured to dwell beneath them, and always in the same spot; but above all, they were in ecstacy on beholding the sea, nor could they comprehend what that desert of water could be. The Arabs of the frontiers are not such novices; there are even several small tribes of them, who, living in the midst of the country, as in the valley of Bekaa, that of the Jordan, and in Palestine, approach nearer to the condition of the peasants; but these are despised by the others, who look upon them as bastard Arabs and Rayas, or slaves of the Turks. The Bedowins in general are small, meagre, and tawny, owing to the heat of the climate, their continual exercise, and extraordinary abstinence; but well formed, active, and alert in a high degree, having expressive countenances, and bright sparkling eyes. Their beards are remarkably thin, their hair is black and wiry. The two ends of the shawl which forms their turban, hang down upon their shoulders, and constitute almost the only distinction between the dress of the Bedowins and other Arabs. Their sheiks wear very wide sleeves to their robes, and girdles richly embroidered. They also preserve a single lock from the crown of the head, by which, in common with other superstitious Mussulmans, they believe the prophet will carry them up to Paradise. They are continually stroking and anointing their beards; to spit upon which is the greatest possible offence, and the loss or diminution of it will cause an Arab to wander far from his tribe, and even from his country, to avoid the derision consequent upon such a catastrophe.

The abstinence of the Bedowins has long been celebrated; indeed the inferior classes live in a state of almost habitual wretchedness and famine, especially among the tribes of the Najd and the Hedjaz. It will appear almost incredible to us, but is an undoubted fact, that the quantity of food usually consumed by the greatest part of them does not exceed six ounces a day. Six or seven dates soaked in melted butter, a little sweet milk or curds, is the Bedowin's common allowance, and he deems himself happy when he can add a small quantity of coarse flour, or a little ball of rice. Meat is reserved for the greatest festivals; and they never kill a kid but for a marriage or funeral. A few wealthy sheiks alone kill young camels occasionally, and eat baked rice with their victuals. In times of dearth, the vulgar, always half famished, do not disdain the most wretched kinds of food: and eat locusts, rats, lizards, and serpents, broiled on briars. Hence are they such plunderers of the cultivated lands, and robbers on the high roads. Habit undoubtedly has its influence in enabling them to support this extraordinary abstemiousness, by preventing the dilatation of the stomach, otherwise common to the human constitution; whilst the extreme heat of the climate destroys in a great measure the activity and tone of the digestive organs. When we consider the influence of climate, custom, and discipline, the real wants of the Bedowin appear few, and easily satisfied; and it has been questioned whether even the above abstinence arises from choice or necessity. But, depending for provisions entirely on the oases, or small islands of verdure, which lie scattered upon the desert, the produce of which is often destroyed by the hot pestilential winds, his means appear still more contracted than his exigencies, and leave no doubt that necessity is the parent motive.

M. Volney remarked that the sheiks, that is the rich, and their attendants, were always taller and more corpulent than the common class. He has seen some of them above five feet five and six inches high; though in general they do not (says he) exceed five feet two inches. This difference can only be attributed to their food, with which the former are supplied more abundantly than the latter: the effects of this are equally evident in the Arabian and Turkish camels, for the latter, dwelling in countries rich in forage, are far more robust and fleshy than the former.

With respect to their internal constitution and government, the Bedowins are divided into separate tribes, each composed of one or more principal families, the members of which bear the title of sheiks, i. e. chiefs or lords. These families have a great resemblance to the patricians of Rome, and the nobles of modern Europe. One of the sheiks has the supreme command over the others. Mr. Neibuhr styles him the grand sheik. He is the general of their little army; and sometimes assumes the title of emir, which signifies commander and prince. The more relations, children, and allies he has, the greater is his strength and power. To these he adds particular adherents, whom he studiously attaches to him, by supplying all their wants. A number of small families also, who, not being strong enough to live independent, stand in need of protection and alliances, range themselves under the banners of this chief; forming by their union the elementary parts of what is called a kabila, or tribe. The tribes are distinguished from each other by the name of their respective chiefs, or by that of the ruling family; and when they speak of the individuals who compose them, they call them the children of such a chief, though they may not be all really of his blood, and he himself may have been long since dead. Thus they say, Beni Temin Oulad Tai, the children of Temin and of Tai. This mode of expression is even applied, by metaphor, to the names of countries: the usual phrase for denoting its inhabitants being to call them the children of such a place. Thus the Arabs say, Oulad Masr, the Egyptians; Oulad Sham, the Syrians; they would also say, Oulad Fransa, the French; Oulad Moskou, the Russians; a remark which is not unimportant to ancient history.

The principal sheik has an indefinite and almost absolute authority. He nevertheless leads a simple life, and commonly studies the welfare of his subjects. Persons of this description, according to M. Volney, who in 1784 resided with one of the most powerful in the country of Gaza, may be compared to our substantial farmers. A sheik who has the command of 500 horsemen, does not disdain to saddle and bridle his own horse, and give him barley and

chopped straw. In the tent, his wife makes the coffee, kneads the dough, and superintends the dressing of the victuals. His daughters and kinswomen wash the linen, and go with pitchers on their head, and veils over their faces, to draw water from the fountain. These manners are highly antique, and agree precisely with the descriptions of Homer, and the history of Abraham in the book of Genesis.

Every grand sheik considers himself, in a political point of view, absolute lord of his whole territories; he exacts duties upon all goods carried through his dominions, to which impositions those who send caravans through the desert to Mecca, are obliged to submit. The Bedowins, on the other hand, keep open the wells for them; permit the free passage of merchandise, escort the caravans, and if they sometimes pillage them, the haughty perfidious conduct of the Turkish officers is the invariable cause. The latter affect to consider the former as rebels, and violate their engagements. The Arabs take their revenge by pillaging the caravans. When the famous Ali Bey conducted the Egyptian caravan to Mecca, he refused to defray all the duties on the road, but promised to pay the rest on his return. This promise was broken, and the year following, the Arabs assembled in greater numbers, and obliged the captain of the caravan to pay for himself and Ali Bey both. The Turks exclaimed against this as an act of robbery; yet the Arabs had only done themselves justice. The conduct of Abdallah, pacha of Damascus, who commanded the Syrian caravan in 1756, was still more odious. When the sheiks of the tribe of Harb came to meet him, to receive the stipulated toll, he gave them a friendly invitation to visit him, but instead of paying the toll, cut off their heads, and sent them to Constantinople, as a proof of his victory over the rebel Arabs. The stroke which the latter suffered by the death of their chiefs, prevented their attempting any thing in revenge either that or the following year; the caravans travelled in triumph to Mecca; and the Turks boasted of the valor and prudence of Abdallah Pacha. But, in the third year, the dark storm of vengeance burst over the heads of the aggressors, when the Arabs, with an army of 80,000 men, under the command of the sheik of the Anæse tribe, routed the Turks with great slaughter, and confiscated the treasures of a large caravan. These violent measures, however, may be considered as only the effects of perfidy and provocation. Mr. Niebuhr observes, that the Bedowins are not cruel, and do not murder those whom they rob, except where the travellers stand upon the defensive, and in the contest kill one of their number; in which case the Arabs proceed according to the law of retaliation. A mufti of Bagdad, returning from Mecca, says the same author, was robbed in Nedsjed. He entered into a written agreement with the robbers, who engaged to conduct him safe and sound to Bagdad for a certain sum, payable at his own house. They delivered him to the next tribe; those to a third, and he was thus conveyed from tribe to tribe, till he arrived safe at home.

An European, belonging to a caravan which was plundered, had been infected with the plague upon his journey. The Arabs, seeing him too weak to follow his companions, took him with themselves, lodged him without their camp, attended him till he was cured, and then sent him to Basra. An Englishman, who was travelling express to India, and could not wait for the departure of a caravan, hired two Arabs at Bagdad, who were to accompany him to Basra. By the way he was attacked by some sheiks, against whom he at first defended himself with his pistols; but, being hard pressed by their lances, was forced to surrender. The Arabs, upon whom he had fired, beat him till he could not walk. They then carried him to their camp, entertained him for some time, and at last conducted him safe to Basra. When Mr. Forskal was robbed by the Arabs in Egypt, a peasant, who accompanied him, was beaten by the robbers because he had pistols, although he had made no attempt to defend himself with them. Pillaging expeditions amongst the Arabs are considered as lawful hostilities against enemies, who would defraud the nation of their dues, or against rival tribes, who have undertaken to protect illegal traders.

The tribes of the Bedowins are extremely numerous, and to attempt an enumeration of them would be a hopeless task. Soyúti, in the fifteenth century, collected many interesting accounts respecting them; but all investigations must, from the very nature of the subject, be exceedingly imperfect. The principal noticed by modern travellers lie in the following order:—

I. Those on the southern and eastern side of the Great Arabian and Syrian Desert, extending from the province of Nejed and El Ahsà to the banks of the Euphrates.

1. Benì Kháled (the children of Kháled), in El Ahsa.

2. Benì Kiyàb, on the northern side of the Persian Gulf, and in Persia.

3. Benì Lám, on the Tigris.

4. Montefic, or Montefij, on the Euphrates, between Basra and Baghdád.

II. Those on the borders of Mesopotamia (Al Jezírah), nominally subject to the pachà of Baghdád.

1. Tái, one of the most ancient and powerful tribes, occupying the fertile plains between Mosul and Nisibis, and rendered illustrious by one of its princes named Hátim, the subject of many well-known romances.

2. Some other tribes which are small and unimportant.

III. Those on the borders of Syria, who provide escorts for the caravans of pilgrims to Mecca.

1. The Mawali.

2. The Benì Sáker

3. The Fáhili, and

4. A numerous and powerful tribe, master of the whole caravan route between Aleppo and Medínah; and, during the reign of the Wahhábis, one of their most effective adherents. It is divided into five inferior clans, and extends from Syria to the Nejed.

IV. More than one hundred other tribes have been mentioned by the writers whose names are

at the close of this article; besides which there are several in Omàn, Hadramaùt, Mahrah, and other provinces of the Arabian peninsula, who have never been visited by Europeans. Bedowins also occupy a large portion of Egypt, stretch along the banks of the Nile, almost to the confines of Abyssinia, and are found even in the Súdán itself, as far as the fifteenth degree of east longitude. The latter call themselves branches of the Anezehs, Johaïnahs, and other well-known tribes in the Arabian and Syrian deserts. The Bedowins in Súdán retain the Arab cast, both in complexion and features, bearing no similitude to the negroes, and one of the Benì Hassan, established in Dár Katakù, near Bornù, whom Burckhardt met at Mecca, was of a dark brown color, 'approaching to a copper tinge;' yet 'his features were decidedly Arab,' having nothing of the Negro in them.—*Burckhardt's Nubia*, p. 477.

Each of the Bedowin tribes appropriates to itself a tract of land, forming its territorial domain; and collected in camps, which are dispersed through the country, make a successive progress over the whole, in proportion as it is exhausted by the cattle. Hence it is, that within a great extent few spots are inhabited, and these vary from one day to another; but as the entire space is necessary for the annual subsistence of the tribe, whoever encroaches on it is deemed a violator of property; this is with them the law of nations. If, therefore, a tribe, or any of its subjects, enter upon a foreign territory, they are treated as enemies and robbers, and a war breaks out. Now, as all the tribes have affinities with each other by alliances of blood or conventions, leagues are formed which render these wars more or less general. The manner of proceeding on such occasions is very simple. The offence made known, they mount their horses and seek the enemy; when they meet they enter into a parley, and the matter is frequently made up; if not, they attack either in small bodies or man to man. They encounter each other at full speed with fixed lances, which they sometimes dart, notwithstanding their length, at the flying enemy: the victory is usually decided by the first shock; the vanquished take to flight full gallop over the naked plain of the desert, and the night generally favors their escape from the conqueror. The tribe which has lost the battle immediately strikes its tents, removes to a distance by forced marches, and seeks an asylum among its allies. The enemy, satisfied with their success, drive their herds farther on, and the fugitives soon after return to their former situation; although the slaughter made in these engagements frequently sows the seeds of hatreds which originate future dissensions.

An eye for an eye, and a tooth for a tooth, was, we know, exacted by the law of Moses; and the universality of this Lex Talionis is one of the distinctive marks of the Bedowin race, prevailing through the whole extent of the Arabian deserts. By this law the blood of every man must be avenged by shedding that of his murderer. This vengeance is called tar, or retaliation; and the right of exacting it devolves on the nearest of kin to the deceased. So nice are the Arabs on this point of honor, that if any one neglects to seek his retaliation he is disgraced for ever. He therefore watches every opportunity of revenge: if his enemy perishes from any other cause, still he is not satisfied, and his vengeance is directed against the nearest relation. These animosities are transmitted as an inheritance from father to children, and never cease but by the extinction of one of the families, unless they agree to sacrifice the criminal, or purchase the blood for a stated price, in money or in flocks. Without this satisfaction there is neither peace, nor truce, nor alliances, between them, nor sometimes even between whole tribes: there is blood between us, say they on every occasion; and this expression is an insurmountable barrier. Such accidents being necessarily numerous in a long course of time, the greater part of the tribes have ancient quarrels, and live in an habitual state of war; which, added to their way of life, renders the Bedowins a military people, though they have made no great progress in war as an art. Their camps are formed in a kind of irregular circle, composed of a single row of tents, with greater or less intervals. These tents, made of goat or camel's hair, are black or brown, in which they differ from those of the Turkmen, which are white. They are stretched on three or four pickets, only five or six feet high, which gives them a very flat appearance; at a distance, one of these camps seems only like a number of black spots; but the piercing eye of the Bedowin is not to be deceived. Each tent inhabited by a family is divided by a curtain into two apartments, one of which is appropriated to the women. The empty space within the large circle serves to fold their cattle every evening. They never have any intrenchments; their only advanced guards and patroles are dogs; their horses remain saddled and ready to mount on the first alarm; but as there is neither order nor regularity, these camps, always easy to surprise, afford no defence in case of an attack: accidents, therefore, very frequently happen, and cattle are carried off every day; a species of marauding war in which the Arabs are very experienced. The tribes which live in the vicinity of the Turks are still more accustomed to attacks and alarms. The latter never cease to wage secret or open war against them. The pachas study on every occasion to harass them. Sometimes they contest with them a territory which they had let them, and at others demand a tribute which they never agreed to pay. Should a family of sheiks be divided by interest or ambition, they alternately succour each party, and conclude by the destruction of both. Frequently too they poison or assassinate those chiefs whose courage or abilities they dread, though they should even be their allies. The Arabs, on their side, regarding the Turks as dangerous enemies, watch every opportunity to do them an injury, cut their harvests, carry off their flocks, and intercept their communication and commerce, making it their study to put them to every inconvenience, and deprive them of every thing but life.

Notwithstanding the depredations which render them a terror to those around them, among

themselves they are remarkable for a good faith, a disinterestedness, and a generosity, which would do honor to the most civilised people. The rights of hospitality are scrupulously regarded. The tent of a Bedowin is an asylum amongst all the tribes, and the moment a stranger, or even an enemy, flying for refuge arrives there, his person becomes instantly inviolable; from that moment it would be reckoned an indelible shame to satisfy even a just vengeance at his expense, and all the power of the sultan would be insufficient to force a refugee from the protection of a tribe, but by its total extermination. Ali Bey (Don Pedro de la Badía), informs us, that when one of the Bedowins heard that his wife had given some food to his enemy, who by mistake solicited charity at his tent, he replied, 'I should probably have killed my enemy had I found him here, but I should not have spared my wife if she had forgotten the law of hospitality.' What little the Bedowin possesses he is ever generous to divide, he sits at the door of his tent, and invites passengers to partake of his repast; and to observe the conduct of the Bedowin Arabs towards each other, one would be tempted to suppose they had all things in common.

With respect to their domestic laws, Mr. Niebuhr tells us, 'that, although the Mahommedans are permitted to have four wives, the Bedowins, who are poor, and cannot easily find the means of subsistence, content themselves with one, for the most part. Those who are in the easiest circumstances, and who have two wives, seem to have married so many, chiefly that they might superintend their concerns in two different places. The conduct of our sheik of Beni Said, as well as his conversation, led us to make this reflection. The disagreement that subsisted between his two wives afforded an instanoe of some of the inconveniences that attend polygamy. The dress of the females in the desert, although simpler, is in reality the same as that worn by the ordinary women of Egypt, although the wife of one of our sheiks wore an uncommon piece of dress: brass rings of an enormous size in her ears. These women living remote from the world, and being wholly occupied in the management of their domestic affairs, appear to be, from these circumstances, less shy and scrupulous than the other women of the east. They make less difficulty of conversing with a stranger, or exposing their faces unveiled before him.'

The property of the Bedowin, like his wants, lies within a small compass, and consists of movables, of which the following is a pretty exact inventory:—A few male and female camels; some goats and poultry; a mare and her bridle and saddle; a tent; a lance sixteen feet long; a crooked sabre; a rusty musket with a flint or matchlock; a pipe; a portable mill; a pot for cooking; a leathern bucket; a small coffee roaster; a mat; some clothes; a mantle of black wool; a few glass or silver rings, which the women wear upon their legs and arms. If none of these are wanting their furniture is complete. But what the Arab takes most pleasure in is his mare, which is his chief support, and assists him in his excursions. They prefer the mare on account of her superior docility, and her milk, together with the improbability of her neighing, to the betrayment of the rider. The Arabs trace the genealogies of their favorite horses to the mares of Mahomet's stud, or even to those of Solomon's. The power of enduring hunger and fatigue in these animals is astonishing. The Emir visited by the Chevalier d'Arvieux was saved by a mare, who carried him three days and nights, without rest or food, and conveyed him out of the reach of his enemies. The attachment of the Bedowin to his horse is almost as proverbial as the fleetness of the animal itself. He inhabits the same tent, is treated with the same care, and is almost as much caressed as the children of the family; which gives the Arabian steeds a docility and tractability which no other breed possesses. Niebuhr, indeed, speaks of the Kohlánet, or thorough bred Arabian horses, as not possessing any beauty, or other excellence than swiftness; but it is highly probable that he was deceived by the wretched condition in which they are commonly kept, from the great difficulty of procuring fodder. He appears also to have been equally misinformed, as to the little value set upon them by the Turks; since the fact is certain, that the Turks esteem them highly, and give immense prices for them, when they can meet with the genuine Arab breed.

The simplicity of the Bedowins has long been celebrated, and numerous illustrations of it have been given. Their love of poetry is well known, and the most ancient Arabian poems, containing the lively descriptions of their customs and opinions, are the productions of Bedowins. The book of Job affords a more ancient picture of the same nation; and both its phraseology and imagery are susceptible of much illustration from the poems and romances of the early Arabs. Tales in prose form another part of their favorite amusements, after the manner of the Adventures of Antar and Ablat, and the Arabian Nights. They have a peculiar passion for such stories, and employ in them almost all their leisure, of which they have a great deal. In the evening they seat themselves on the ground, at the threshold of their tents, or under cover, if it be cold; and there, ranged in a circle round a little fire of dung, their pipes in their mouths, and their legs crossed, they sit a while in silent meditation, till on a sudden one of them breaks forth with, once upon a time, and continues to recite the adventures of some young sheik and female Bedowin: he relates in what manner the youth first got a secret glimpse of his mistress; and how he became desperately enamored of her: he minutely describes the lovely fair; boasts her black eyes, as large and soft as those of the gazelle; her languid and impassioned looks, her arched eye-brows, resembling two bows of ebony; her waist straight and supple as a lance; he forgets not her steps, light as those of the young filley; nor her eye-lashes, blackened with kool; nor her lips painted blue; nor her nails, tinged with the golden colored henna; nor her breasts, resembling two pomegranates; nor her words, sweet as honey. He recounts the sufferings of the young lover, so wasted with desire and passion that his body no longer yields any shadow.

At length, after detailing his various attempts to see his mistress, the obstacles of the parents, the invasions of the enemy, the captivity of the two lovers, &c. he terminates, to the satisfaction of the audience, by restoring them, united and happy to their paternal tent; and receives the tribute paid to his eloquence, in the Ma cha allah (an exclamation of praise, equivalent to admirably well!) he has merited. The Bedowins have likewise their love songs, which have more sentiment and nature in them than those of the Turks and inhabitants of the towns; doubtless, because the former, whose manners are chaste, know what love is; while the latter, abandoned to debauchery, are acquainted only with enjoyment. These tales, together with a few traditional receipts in medicine, and a practical knowledge of a few of the constellations, constitute the whole of their literature; and their ignorance in other respects is very remarkable. The following anecdote by Mr. Niebuhr, has been thought worthy of insertion. 'In one of those expeditions, a few years since, undertaken against the pacha of Damascus, who was conductor of the Syrian caravan to Mecca, the tribe of Anæse, which gained the victory, showed instances of their ignorance, and of the simplicity of their manners. Those who happened to take goods of value knew not their worth, but exchanged them for trifles. One of those Arabs having obtained for his share a bag of pearls, thought them rice, which he had heard to be good food, and gave them to his wife to boil, who, when she found that no boiling could soften them, threw them away as useless.'

With respect to religion, the freedom of the Bedowins is remarkable. There is, however, a striking difference between the Arabs of the towns and those of the desert. While the former crouch under the double yoke of political and religious despotism, the latter live in a state of perfect freedom from both. On the frontiers of the Turks, indeed, the Bedowins, from policy, preserve the appearance of Mahommedanism; but so relaxed is their observance of its ceremonies, and so little fervor has their devotion, that they are generally considered as infidels, who have neither law nor prophet. They even make no difficulty in saying that the religion of Mahomet was not made for them: 'For (add they) how shall we make ablutions who have no water? How can we bestow alms who are not rich? Why should we fast in the Ramadan, since the whole year with us is one continued fast? And what necessity is there for us to make the pilgrimage to Mecca, if God be present everywhere?' In short, every man acts and thinks as he pleases, and the most perfect liberty exists among them.

Their superstitious dread of charms appears from the following passage of Burckhardt's Account of his Journey in the Peninsula of Mount Sinai. He had made it a rule never to let the Arabs, among whom he was travelling, see him write; but 'on one occasion his long absence from his companions roused their curiosity. One of them came to look after him, and seeing him immovably fixed, squatted down on the ground, and closely muffled up, he approached on tiptoe, and suddenly lifting up the cloak which skreened him, detected a book in his hand. 'What is this?' exclaimed the Arab, 'What are you doing? I shall not make you answerable for it at present, because I am your companion, but I shall talk further to you about it when we are at the convent.' When they had returned to their halting place, Burckhardt, 'requested him to tell what he had further to say.' To this the Bedowin replied, in a passionate tone, 'You write down our country, our mountains, our pasturing places, and the rain which falls from heaven; other people have done this before you, but I at least will never assist in the ruin of my country.' Burckhardt assured him that he liked the Arabs too well to wish to injure them. 'On the contrary,' he added, 'had not I occasionally written down some prayers ever since we left Taba, we should most certainly have been all killed, and it is very wrong in you to accuse me on account of that, the omission of which would have cost us our lives.' He was startled at this reply, and seemed nearly satisfied. 'Perhaps you say the truth,' he observed; 'but we know that some years since, several men, God knows who they were, came to this country, visited the mountains, wrote down every thing, stones, plants, animals, even serpents and spiders, and since then little rain has fallen, and the game has greatly decreased.' The same opinions prevail in the mountains as are current among the Bedowins of Nubia, and they believe that a sorcerer, by writing down certain charms, can stop the rains and transfer them to his own country.' *Travels in Syria and the Holy Land*, p. 519.

Notwithstanding this general ignorance and credulity, the Bedowins possess considerable strength of genius; their poems abound with native similitudes, which embellish by their force and variety, and are distinguished by unexpected epigrammatic turns. The skill, also, with which they draw an unforeseen inference, or bring out an unexpected result, shows the acuteness of their understandings, habituated to a rapidity of plan and execution. Their talent for repartee is well known. When one who could repeat all the Hadith or sayings of Mahomet by heart, was asked how his memory could retain so many different sentences at once, he instantly replied, 'just as the sand in the desert retains all the pearly drops that fall from the heavens without losing a single one of them.' Amusing sketches of these people may be found in Volney, Sonnini, Bruce, and other Asiatic travellers; but the most accurate are those of the Chevalier d'Arvieux, Memoires; six tomes, in 12mo. Paris 1735, edited by Father Labat, Niebuhr, Beschreibung von Arabien, p. 379. Seetzen, Von Zachi, Monathliche Correspondenz, 1819. February and March. Description de l'Egypte, Mémoires par Dubuis et Larrey; also in Burckhardt's Travels, who, as he took great delight in studying the manners and characters of the Bedowins, has left a separate and detailed account of them.

Living constantly, as the Arabs do, under their camel's hair tents, occupied as they are solely with the care of their flocks and herds, speaking nearly the same language, and placed many of

them in the same regions as the Israelites under Moses, their customs and habits bear in many respects a strong resemblance to those of the Jewish patriarchs. The Memoires of the Chevalier d'Arvieux, already quoted, have supplied much curious and useful information on this subject, the perusal of which will interest the reader, and by comparing the articles, as he proceeds, with the Jewish narrative, he will find his views of the patriarchal period, with respect both to the geography and political incidents of it, greatly enlarged.

Those who are fond of tracing the effect produced by local circumstances upon the genius and national character of a people, will find much interesting matter for their consideration in the detailed particulars of the history of this remarkable people. For further historical authorities, we refer to the *Mezhar of Soyúti*; the great historical works of *Abú l' Fedà, Shahristáni, and Makrizi; Pococke's Specimen Historiæ Arabum; Sale's Preliminary discourse to his translations of the Koràn; Burckhardt's Translations from Makrizi (Nubia, Appendix,* No. iii.) *Quatremères Mémoires sur l'Egypte,* ii. 190; *Jackson's Account of Morocco; Sonnini, Voyages en Egypte, and Volney's Travels,* ii. 25.

BED'RAGGLE, be and draggle. See DRAGGLE.

DE'DRAWE, be and draw. See DRAW.

BE'DREINTE, } See DRENCH and DRINK.
BE'TREINTE. }

BEDRI, a town and district in the pachalic of Bagdad, the former surrounded by fine gardens. It is the frontier of the Turkish empire.

BEDRIACUM, in ancient geography, a village of Italy, situated, according to Tacitus, between Verona and Cremona, but nearer the latter than the former. From an account given by that historian, Cluverius conjectures that the ancient Bedriacum stood in the place where the town of Caneto now stands. This village was remarkable for the defeat of the emperor Galba by Otho, and afterwards of Otho by Vitellius.

BE'DRIBBLE, be and dribble. See DRIBBLE.

BEDRIP, BEDREPE, or BEDERAPE, the customary service which inferior tenants anciently paid their lord, by cutting down his corn, or doing other work in the field.

BE'DROPT, be and drop. See DROP.

BEDWIN, GREAT, a town of Wiltshire, six miles south of Hungerford, and seventy west from London. It is an ancient borough by prescription, and sends two members to parliament. It is said to have been a considerable city in the time of the Saxons, and that the traces of its fortifications are extant. It is situated by the side of the Kennet and Avon canal. The church is spacious, with a lofty tower, and is constructed entirely of flints.

BEE, } Ang.-Sax. beo. Wachter
BEE-GARDEN, } derives the name from the
BEE-HIVE, } Old Saxon byan, which sig-
BEE-MASTER. } nifies to build, and to inhabit, because the animals designated by the term dwell together under one government, and construct their habitations with great skill and industry.

Monsieur Cobweb; good Monsieur, get your weapons in your hand, and kill me a red-hip'd humble *bee* on the top of a thistle; and good Monsieur bring me the honey bag. *Shakspeare.*

So work the honey *bees,*
Creatures that by a ruling nature teach
The art of order to a peopled kingdom. *Id.*

For that doth wrong must look to be wronged again; Habet et musca splenem, et formica sua bilis inest. The least fly hath a spleen, and a little *bee* a sting. An asse overwhelmed a thisselwarps's nest, the little bird pecked his gaul'd back in revenge, and the humble-*bee* in the fable flung down the eagle's eggs out of Jupiter's lap. *Burton. Anat. Mel.*

As *bees*
In spring time, when the sun with Taurus rides,
Pour forth their populous youth about the hive
In clusters; they among fresh dews and flowers
Fly to and fro; or on the smoothed plank,
The suburb of their straw built citadel,
New rubb'd with balm, expatiate and confer
Their state affairs. *Milton.*

They that are *bee-masters,* and have not care enough of them, must not expect to reap any considerable advantage by them. *Mortimer.*

A convenient and necessary place ought to be made choice of for your apiary or *bee-garden.* *Id.*

To have BEES IN THE HEAD. A phrase meaning to be choleric; to have that in the head which is easily provoked, and gives pain when it is. Also to be restless. To have 'a bee in the bonnet,' is a similar phrase.

But, Wyll, my maister hath *bees in his head,*
If he find me here pratinge, I am but deade.
Damon and Pith. O. Pl.

He has *a head full of bees.*
Ben Jonson. Barth Faer.

BEE, in natural history, a genus of insects, the characters and habits of which are fully given under the general name, apis. The principal species are there also described. See APIS.

BEE, in astronomy. See APIS.

BEE, in metaphorical language, denotes sweetness, industry, &c. Thus Xenophon is called the Attic bee, on account of the great sweetness of his style. Antonius got the denomination of Melissa, or the bee, on account of his collection of common places. Leo Allatius gave the appellation of apes urbanæ, i. e. city bees, to the illustrious men at Rome from 1630 to 1632.

BEE, or BIE, in the Saxon language, signifies a station; and in this sense makes part of the names of several places in Scotland; such as Cairnbie, Middlebie, Overbie, &c. Perhaps also the different Beestons, &c, in England may have had their names from the same origin.

BEE-BIRD. See COLIBRI.

BEE-BREAD, BEE'S-BREAD, or BEE-GLUE, the farina of flowers collected by the working bees: called by the ancients propolis. See APIS. We feel, however, the following remarks of Mr. Bonner's too sensible and important to be omitted here:—'The substance, commonly called bee-bread,' he says, 'is to be found at the bottom of many of the cells, and is frequently covered over with honey. The bees carry it home in loads upon their legs, or rather their thighs. It is generally of a yellow color, but often takes its color from the flowers from which it is collected. Various conjectures have been made by different authors re-

specting its use. Some allege that the bees eat it; hence the name bee-bread. Others suppose, that after being taken into their stomachs, it is converted by some peculiar action of their internal juices into wax, of which every body knows their combs are made. But an objection to this hypothesis arises from the consideration, that the bees, when first put into an empty hive, carry little or none of this stuff on their legs for some time, till a great number of combs are made; and that after the combs are completed (which they generally are within two or three weeks after the swarm have taken possession of the hive), the bees still continue to carry in this stuff during the whole working season. To this, however, it may be replied, that, perhaps, as they have no cells to put it into at that time, they carry it home in their bellies, where it probably undergoes a speedy change in passing through their bodies, and may thereby be converted into perfect wax, with which they manufacture their combs. There is another class of authors, who suppose that the bee-bread is used by the old bees to feed the young ones in the cells, by the mouth, as pigeons feed their young ones. To this it may be objected, that the young bees surely cannot make use of all the bee-bread, which the old bees are almost constantly carrying into the hive, when they are at work. Perhaps both these last hypotheses may be true; as it may not only serve to feed the young bees, but also, by passing through the bodies of the old ones, may be converted into wax; with which bees not only build their combs, when a swarm is newly put into a hive, but also seal up both their young in the cells, and their honey in the combs. If this supposition be true, then the consumption of bee-bread, through the course of the year, but especially during the honey and breeding seasons, must be very great; and therefore we need not be surprised at the quantities imported by the working-bees. But, whatever truth may be in either or both of these theories, I am certain of one thing, that the bees do not live on bee-bread alone; for they will die of hunger, although there be plenty of it in the hive, if there be no honey in it; whereas, when they have abundance of honey, they will live without bee-bread, at least for many weeks. Reaumur, however, says, that it is absolutely necessary for food to bees. For my part, I have always observed the bees most busily employed in carrying in this stuff while the young bees are breeding; but when they want a queen, and have no eggs to rear another, they immediately give over carrying it into the hive; thinking (as it would seem), that as they have no young bees to feed or seal up in the cells, it would be an idle business to bring any more of it home; especially as they do not make much use of it themselves, and have more already in the hive, than they will stand in need of, for their own use.'

BEE-EATER. See MEEROPIS.

BEE-HIVES. See APIS.

BEE HUMBLE. See BOMBYLIUES.

BEEBAN, a pass in the high road between Algiers and Constantina. The rocks which cross it are in many cases hewn down like so many doors, which has led the Arabs to give it the appellation of beeban, or gates. Six miles north of Accaba.

BEECH, BEE'CHEN, BEE'CHY. } Bece and boc, Old Saxon; φηγος, and Latin *fagus*. The φ. and *f.* being changed into *b*. The mast bearing tree in the earliest ages furnished food for man.

The smooth-leaved *beeches* in the field receive him,
With coolest shades till noontide rage is spent.
Fletcher's Purple Island.

Black was the forest, thick with *beech* it stood.
Dryden.

With diligence he'll serve us when we dine,
And in plain *beechen* vessels fill our wine. *Id.*

I know not why the *beech* delights the glade,
With boughs extended, and a rounder shade;
Whilst towering firs in conic forms arise,
And with a pointed spear divide the skies. *Prior.*

Dull are the pretty slaves, their plumage dull,
Ragged, and all its brightening lustre lost;
Nor is that sprightly wildness in their notes
Which, clear and vigorous, warbles from the *beech*.
Thomson's Seasons.

Not a pine in my grove is there seen,
But with tendrils of woodbine is bound;
Not a *beech* 's more beautiful green,
But a sweet-briar twines it around.
Shenstone. Pastorals.

BEECH, in botany. See FAGUS.

BEECH-FORK, a river of the United States in Kentucky, and one of the three principal sources of the river Salt, which rise in three different parts of Mercer county; and, winding westward, unite and form that large navigable river, about fifteen miles from the Ohio.

BEECH GALL, in natural history, a hard knot on the leaf of the beech, containing the maggot of a species of fly. There are sometimes only one of these upon a leaf, sometimes more; they always grow from the same point, owing to the fly's having laid so many eggs in the same spot. They are of an oblong figure somewhat flatted, and shaped like the stone of a plum. They are so hard as not to be broken between the fingers; their substance seems of the same nature with that of a nut-shell. In each gall there is only one cavity inhabited by a white worm, which in time passes through the nymph state into that of the fly, to which it owed its origin.

BEECH MAST, the fruit of the beech-tree; a triangular seed, like an acorn, containing a whitish oleaginous pith, of a very agreeable taste. It is used for fattening hogs, deer, &c. It has sometimes, even to men, proved an useful substitute for bread. Chios is said to have endured a memorable siege by means of it.

BEECH OIL, an oil drawn by expression from beech mast. This oil is very common in Picardy, and used there, and in other parts of France, instead of butter; but most of those who take a great deal of it complain of pains and a heaviness in the stomach. An attempt was made some years ago to introduce the manufacture of beech-oil into England, and a patent was granted to the proprietor, but without success; the country people turning their mast to better account in feeding hogs with it, than by selling it to the patentee for oil.

BEEDER, a province in the Deccan, Hindostan, now possessed by the Nizam, situated

principally between the sixteenth and eighteenth degrees of north latitude. To the north it is bounded by Aurungabad and Nandere; on the south by the river Krishna; to the east it has the province of Hyderabad; and to the west the province of Bejapoor. In length it may be estimated at 140 miles, by sixty-five the average breadth. The surface of this province is uneven and hilly, but not mountainous, and it is intersected by many small rivers which fertilise the soil, and flow into the Beemah, Krishna, and Godavery. The country is very productive, and under the ancient Hindoo government contained a redundant population, but is now thinly peopled.

BEEDER, a town in the province of Beeder, of which it is the capital. Lat. 17° 47′ N., long. 77° 48′ E. It is fortified with a stone wall, a dry ditch, and many round towers. The wall is six miles in circumference, and the town which it encloses stands in an open plain, except the east side, which is a rising ground about 100 yards high. The remains of many good buildings are to be seen in this decayed city. It was formerly noted for works of tutenague inlaid with silver, and before the Mahommedan invasion, was the capital of a Hindoo sovereignty. Travelling distance from Hyderabad, seventy-eight miles, from Delhi 657, from Madras 430, and from Calcutta 980 miles.

BEEF′, *n.* & *adj.* } Fr. *boeuf*, from the Lat. *bos*, *bovis*, Gr. *βους*, from *βοω* (*βοσκω*). To feed. The
BEEF′-EATER, } flesh of the ox, bull, or cow, prepared for food.
BEEF′-WITTED. } The plural is beeves. Johnson says, the flesh of black cattle. *Beef-eater*, because the commons eat *beef*, when in waiting. Mr. Stevens derives it thus: *beef-eater* may come from *beaufetier*, one who attends at the sideboard, which was anciently placed in a *beaufet*. The business of the *beef-eaters* was to attend the king at meals. A yeoman of the guard.

> Have by the night, accursed thieves,
> Slaine his lambes, or stolne his *beeves*.
> *Browne. The Shepherd's Pipe.*

> A pound of man's flesh
> Is not so estimable or profitable,
> As flesh of muttons, *beeves*, or goats.
> *Shakspeare.*

The plague of Greece upon thee, thou mongrel *beef-witted* lord. *Id.*

One way a band select from forage drives
A herd of *beeves*, fair oxen, and fair kine,
From a fat meadow ground. *Milton.*

The fat of roasted *beef* falling on birds, will baste them. *Swift.*

On hides of *beeves*, before the palace-gate,
Sad spoils of luxury! the suitors sate. *Pope.*

BEEF-EATERS, (Beaufetiers), yeomen of the guard to the king of Great Britain, so called from being stationed by the sideboard at great royal dinners. They are kept up rather from state than for any military service. Their arms are a sword and lance. They were first raised by Henry VII. in the year 1485, and anciently consisted of 250 men of the first rank under gentry, and of a larger stature than ordinary, each being required to be six feet high. At present there are but 100 on constant duty and seventy more not on duty; and when any one of the 100 dies, his place is supplied out of the seventy. They go dressed after the manner of king Henry VIIIth's time. Their first commander, or captain, was the earl of Oxford.

BEEF-EATER, in zoology, the English name of the Buphaga Africana. See BUPHAGA.

BEEF ISLAND, one of the smaller Virgin islands in the West Indies, between Dog Island on the west and Tortola on the east, about five miles long and one broad. Long. 63° 2′ W., lat. 18° 23′ N.

BEEF TEA, in medicine, the substance of beef, extracted by boiling it in water, which is now very generally prescribed, and with great success, in all diseases of debility, when the stomach is not able to digest solid food.

BEEK (David), an eminent portrait-painter, was born at Arnheim, in Guelderland, in 1621, and became a disciple of Vandyck; from whom he acquired a fine manner of penciling and coloring. He possessed, besides, that freedom of hand, and rapidity of execution, for which Vandyck was so remarkable. King Charles I. when he observed his expeditious manner of painting, was so surprised, that he told him, he supposed he could paint if he was riding post. He was appointed portrait-painter to queen Christina of Sweden; and by her recommendation, most of the illustrious persons in Europe sat to him for their pictures. Having an earnest desire to visit his friends in Holland, he left the court of Sweden much against the queen's inclination, and died soon after at the Hague, where, it is suspected that he was poisoned. This happened in 1656, when he was only thirty-five. A singular adventure happened to him, as he passed through Germany. He was suddenly and violently taken ill at the inn where he lodged, and seeming to all appearance dead, was laid out as a corpse. His servants expressed the strongest marks of grief for the loss of their master; but consoled themselves, while they sat beside his bed, by drinking very freely. At last one of them said to his companions, 'our master was fond of his glass while alive, let us give him one glass now:' and raised up his master's head to pour the liquor into his mouth. Beek, on this opened his eyes; and by proper management and care recovered perfectly.

BEELE, a kind of pick-axe, used by the miners for separating the ores from the rocks in which they lie; and called a tubber by the miners of Cornwall. The iron part of it weighs about eight or ten pounds. Though it is steeled at each end, it wears out so fast, that it requires new points once a fortnight.

BEELIKE, or BEELICH, a town of Prussia, in the duchy of Westphalia, with a Benedictine provostship. Twelve miles E. N. E. of Arensberg, and thirteen north-west of Brilon. Long. 8° 27′ E., lat. 51° 30′ N.

BEELZEBUB, BEELZEBUL. See BAALZEBUB.

BEEMAH, or BEWRAH RIVER (Bhima, terrific), rises in the mountains to the north of Poonah, not far from the source of the Godavery, and passes within thirty miles to the east of Poonah, where it is esteemed sacred. It is one of the principal rivers that join the Krishna,

which it does near the town of Firozegur, in the province of Beeder. The length of its course, including the windings, may be estimated at 400 miles. The horses most esteemed by the Mahrattas, are those bred on the banks of the Beemah.

BEEMEN, or SHEEMEN, in astronomy, seven stars of the fourth magnitude, following each other, in the fourth flexure of the constellation Eridanus.

BEER', BEER'-HOUSE, BEER'-BREWER. } Ger. and Dut. *bier*. Goldast thinks from *pyris*, beer being first made of pears. Vossius derives it from the Lat. *bibere*, to drink; Noel from *beor*, describing a kind of beverage made from honey. Johnson traces it to *bir*, Welsh, and adds, liquor made of malt and hops. It is distinguished from ale either by being older or smaller.

Oh, let them come, and taste this *beer*,
And water henceforth they'll forswear.
Thomas Nabbes, in Ellis.

Among those that were without the fort, and which were of the foresaid company of Captaine Ribault, there was a carpenter of threescore years olde, once a *here-brewer*. *Hakluyt's Voyages.*

Here's a pot of good double *beer*, neighbour; drink.
Shakspeare.

Flow, Welsted! flow, like thine inspirer, *beer*;
Tho' stale, not ripe; tho' thin, yet never clear;
So sweetly mawkish, and so smoothly dull;
Heady, not strong; and foaming, tho' not full.
Pope.

BEER is perhaps any fermented liquor made from a farinaceous grain, but generally from barley. It is, properly speaking, the wine of barley. Under the article ALE, we have entered upon the subject of brewing that article pretty generally. The only other species of beer is porter. See therefore, ALE, PORTER, and BREWING. Small or Table Beer, we may here add, is usually made, particularly in quantity and for sale, by mashing with a fresh quantity of water what is left after the beer or ale wort is drawn off; and sometimes from a small quantity of malt brewed on purpose. Two parts of London table beer may be considered equivalent in strength to one of ale; but, according to the legal distinction, (59. Geo. III. c. 53. sect. 25.), all beer sold above the price of 18s. per barrell is deemed ale, or strong beer, and pays ale duty, viz. 10s. per barrel; and beer, of the price of 18s. per barrel, or under, exclusive of the duty, namely, 2s. per barrel, is considered as table beer within the meaning of the act.

The final gravity of table beer wort is usually from 11 to 12,50lbs. per barrel. Every brewer, however, fixes that final standard strength, which he finds most suitable to his trade.

BEER, in weaving, nineteen threads running through the whole length of the piece.

BEER, in ancient geography, a city twelve miles north of Jerusalem, on the road to Shechem; where Jotham the son of Gideon concealed himself from his bloody brother Abimelech.

BEER, or BEER ELIM, a place in the country of the Moabites, where the Israelites dug wells. Numbers, xxi. 18.

BEER, BEERJICK, BIR, or BIRADSHICK, a town of Asiatic Turkey, in the government of Orfa, the ancient Thiar or Barsampse. It stands upon a lofty eminence on the west bank of the Euphrates, which is here deep and rapid, about 130 yards broad. A bridge of boats conveys caravans from Aleppo to Orfa at this point, for which privilege a pontage is paid here. Niebuhr says, it consists of 500 houses, protected by a citadel and a wall; but the whole place is in a dilapidated condition. It was long deemed impregnable, and is still considered a place of strength. Pococke notices a collection of ancient arms and armour, which he saw here. Among these were various sorts of foil arrows: many of them pointed with iron, and to the extremities of some, combustible matter, made up in a triangular form, was attached, which being ignited was carried into the town which it was intended to set on fire. There was another sort to which iron bottles, or cases filled with similar combustibles, were fixed, which were inflamed previous to their discharge. The cross-bows were straight, and were about five feet long. There were also a variety of slings. Some writers are of opinion that the arms now described may have been those of the Romans, as they very well correspond with the description given of them by Ammianus Marcellinus. Formerly considerable trade was carried on to Bagdad by means of vessels descending the river. Beer is sixty-seven miles from Orfa; 115 south-west of Diarbekir; and 114 north-east of Aleppo. It is the great thoroughfare from Aleppo to Diarbekir and Persia.

BEER, EAGER, is used by calico printers, chemists, lapidaries, scarlet-dyers, vinegar-merchants, white-lead men, &c.

BEER LA-HA-ROI, in ancient geography, a place between Kadesh and Shur, south of Canaan, where the angel appeared to Hagar. Genesis xvi. 14.

BEER MACHINES, are contrivances by means of which that liquor is drawn from three or four casks at once, and delivered from cocks placed close together in the bar of a tavern or other convenient place above the cellar. These machines are nothing else than an assemblage of small lift pumps, whose suction pipes communicate with the casks containing the beer: they are now very common in London and other large towns. The internal part of the machine consists of four lift pumps, firmly fixed between two blocks of wood, and in each of which semicylindric excavations are made to contain the barrels: these are held together and fastened to the case enclosing the pumps by two screws between each barrel, seen plainly in the figure. The upper part of the case of the pumps is a half cylinder, and has four narrow openings in it, corresponding to the axis of each pump; in these openings the levers which give motion to the pump buckets move: they are bent, the angular point being the centre on which they move: a short arm has the pump rod joined to it, and to a long one is affixed the handle. The centre pins of the levers are supported on a piece of wood fixed in the case nearly in the axis of its cylindric head; the pump rod is divided into two branches; at their lower ends which receive a pin, joining them to the bucket rod, through which the pin passes. The rod is continued above

as well as below the joint: the lower part goes into the pump, and the upper slides through a brass collar fixed to the back of the case; this collar is included between the two branches of the pump rod: its use is to confine the bucket rod to move truly vertical, while the pump rod being attached to it at only one point can obey the irregular motion occasioned by the lever describing a circular arc. The bucket rod passes through a stuffing-box in the top of the pump, through which it moves easily, and yet without permitting the escape of any liquor by it: below this it is screwed into the branches of the bucket, which has a valve in it, and is surrounded by soft leather, which makes it fit the barrel of the pump without leaking. In the bottom of the barrel another valve, similar to that in the bucket, is placed, and a close tube leads from it to a leaden pipe, bringing the liquor from the casks in the cellar. At the upper part of each barrel a small leaden pipe is soldered: these pipes are bent upwards, and come through the side of the case. Sometimes the pipes leading from the two first pumps are brought into one, and both deliver through the same spout; for the convenience of mixing two kinds of beer. The operation of the pumps is exactly the same as the common sucking pump. Some beer-pumps (as those invented by Mr. Rowntree of Blackfriar's-road) are of a more complex construction.

BEERING'S or BEHRING'S BAY, is situated in the sixtieth degree of latitude, on the west coast of North America, and received this name from captain Vancouver, in honor of Vitus Behring, who visited these shores in 1740, and anchored in a large bay, the position of which was not correctly ascertained. Captain Cook assigned this appellation to a different part of this shore; but as he only saw it at a distance, he could not perceive the tract of low ground that stretches from the base of the mountains which he supposed to bound the bay. Vancouver found that this low land precluded all appearance of a bay, in the place which Captain Cook had assigned to it; and therefore, as the name was intended to be applied to the bay in which Behring anchored, he transferred it to that which Mr. Dixon had previously called Admiralty Bay. There is no other Bay, he tells us, between Cape Suckling and Cape Fairweather, in which Behring could have found shelter.

BEERING'S ISLAND, an island in the North Pacific ocean, which is sometimes classed with the Aleutian chain, of which it may be considered the most western link. It extends 104 miles in length, by fifteen in breadth; is mountainous and sterile. The west coast is elevated, the northern point low land; the principal mountains, called the Hanavoy ridge, consisting of granite and sandstone, contain many caverns. There are two bays on the coast, wherein vessels in the fur trade winter, but they are shallow, of dangerous access, and exposed to the north winds; the climate is rigorous. No wood grows here, but various kinds of plants are common. Several small streams issue from the lakes and pools near the shore. Minerals of value are said to have been found, and pieces of native copper are cast ashore after storms. The surrounding seas abound in whales; phocæ are numerous on the shores, and multitudes of sea otters; black and blue foxes formerly inhabited the island. The sea cow was an object of pursuit, but so incessantly sought after, that the species is either extinct or deterred by danger from approaching the island, as none have been seen on it since the year 1708. When the sea otter, whose numbers have also been greatly diminished, disappears in March, it is replaced by the sea lion, because in the northern regions animals frequent particular places in the most regular succession. This island was discovered in 1740, or 1741, by Vitus Beering, a Dane, a commodore in the Russian service. The latitude of this island is about 55° N., and the long. 167° E.

BEEROO, a country of central Africa, to the south of Bambara, and having Ludamar on the west. The government is in the hands of the Moors. It is probably very populous, since Walet, the capital was reported to be larger than Tombuctoo; but the interior is little known.

BEERSHEBA; from באר, a well, and שבע, he sware, or שביעה, an oath; a city to the south of the tribe of Judea, adjoining to Idumea, where, anciently, Abraham and Isaac swore friendship to Abimelech. It stood twenty miles south of Hebron, and forty-two in the same direction from Jerusalem. When Eusebius wrote, A. D. 315, it was still a considerable town, κωμη μεγιστη, garrisoned by Roman soldiers. The boundaries of the Holy Land are often described in Scripture as extending from Dan to Beersheba (2 Sam. xvii. 11); and after the separation of the kingdoms of Judah and Israel, the boundaries of the former are mentioned as from Beersheba to Mount Ephraim. The Beersheba which is described by the historian of the Crusades (Jacobus de Vitriaco, Hist. Hieros. 36; Gulielmus Tyrius, xiv. 22), as situated ten or twelve miles from Ascalon, is a different place.

BEES HEAD (ST.), a lofty promontory, with a light-house on the top of it, about five miles from Whitehaven, to which it is connected by one continued range of rocks rising perpendicularly from the beech.

BEES, SAINT, a town in the county of Cumberland, between Whitehaven and Egremont, noted for its public school. It had once a nunnery, the church of which is still used, and the free grammar-school has a good library. The schoolmaster is appointed by the provost and fellows of Queen's College, Oxford. The parish is of great extent, and appears, from its ruins, to have been fortified by the Romans at all the convenient landing places.

BEESTINGS, BREASTINGS, or perhaps more properly BEASTINGS, a term used by country people for the first milk taken from a cow after calving. The beestings are of a thick consistence, and yellow color, seemingly impregnated with sulphur. Dr. Morgan imagines them peculiarly fitted and intended by nature to cleanse the young animal from the recrements gathered in its stomach and intestines, during its long habitation in utero. The like quality and virtue he supposes in women's first milk after delivery; and hence infers the necessity of the mother's suckling her own child, rather than committing it to a nurse whose first milk is gone.

BE'ET, *n. s.* Lat. *beta*, the name of a plant. See BETA.

BEET, in botany. See BETA.

BEE'TLE, *v.* & *n.* / BEET'LING, / BEETLE'BROWS, / BEETLE'BROWED, / BEETLE'HEADED, / BEETLE'STOCKED. *Beetle*, an insect, the name probably derived from the word *beat*, because it heavily beats the air with its wings. *Beetle*, a mallet; a three-man-*beetle*, was one so heavy that it required three men to manage it, two at the long handles, and one at the head. *Beetleheaded*, probably in allusion to this it means a thick and heavy skull. *Beetlebrow* is an overhanging heavy brow. To *beetle* is to hang over like the top of a cliff.

The poor *beetle* that we tread upon,
In corporal suff'rance feels a pang as great
As when a giant dies. *Shakspeare.*

A whoreson, *beetleheaded*, flap-ear'd knave. *Id.*

Enquire for the *beetlebrow'd* critic, &c. *Swift.*

When by the help of wedges and *beetles*, an image is cleft out of the trunk of some well-grown tree; yet after all the skill of artificers to set forth such a divine block, it cannot one moment secure itself from being eaten by worms, or defiled by birds, or cut in pieces by axes. *Stillingfleet.*

Others come sharp of sight, and too provident for that which concerned their own interest; but as blind as *beetles* in foreseing this great and common danger. *Knolles' History of the Turks.*

The butterflies and *beetles* are such numerous tribes, that, I believe, in our own native country, alone, the species of each kind may amount to one hundred and fifty, or more. *Ray.*

Or where the hawk
High in the *beetling* cliff his eiry builds. *Thomson.*

Now fades the glimm'ring landscape on the sight,
And all the air a solemn stillness holds,
Save where the *beetle* wheels his droning flight,
And drowsy tinklings lull the distant folds. *Gray's Elegy.*

BEETLE, in entomology. See ATTELABUS, and SCARABÆUS.

BEETLE, in mechanics, is likewise called a stamper, and by paviours a rammer.

BE'FALL. Be and fall. See FALL.

BE'FIGHT. Be and fight. See FIGHT.

BE'FIT. Be and fit. See FIT.

BE'FOAM. Be and foam. See FOAM.

BE'FOOL. Be and fool. See FOOL.

BE'FORE, / BEFORE'HAND, / BEFORE'TIME. Compounded of be and fore, written differently in different eras of our literature, as *bifore*, *byfore*, *beforn*, and *beforne*. When referring to time, it signifies anterior or prior; to place in front, or in presence of; and to the state of the mind it expresses preference.

Beforetime in Israel, when a man went to enquire of God, thus he spake. 1 *Sam.* ix. 9.

But tell me, lady! wherefore do you beare
This bottle thus *before* you with such toile,
And eke this wallet at your backe arreare,
That for these carles to carry much more comely were? *Spenser.*

Thou'rt so far *before*,
The swiftest wing of recompense is slow
To overtake thee. *Shakspeare.*

His profession is to deliver precepts necessary to eloquent speech; yet so, that they which receive them, may be taught, *beforehand*, the skill of speaking. *Hooker.*

In this realm of England, *before* Normans, yea, *before* Saxons, there being Christians, the chief pastors of their souls were bishops. *Id. Eccles. Pol.*

Heavenly born,
Before the hills appear'd, or fountain flow'd,
Thou with eternal wisdom didst converse. *Milton.*

You tell me, mother, what I knew *before*,
The Phrygian fleet is landed on the shore. *Dryden.*

Your soul has been *beforehand* with your body,
And drunk so deep a draught of promis'd bliss,
She slumbers o'er the cup. *Id.*

I have not room for many reflections, the last cited author has been *beforehand* with me, in its proper moral. *Addison.*

BEFORT, a ci-devant district of France, on the frontiers of Switzerland, now comprehended in the department of the Upper Rhine. Though comparatively sterile, it has excellent iron mines; these, and the forges connected with them, employ a large portion of its population.

BEFORT, or BELFORT, once the capital of the county, and now of an arrondissement, is a small but strong town, seated on the Savoureuse. It was ceded to France by the treaty of Westphalia, in 1648. It is important as being a pass from Alsace to Franche Comté; and it is, by its central position, enabled to carry on a good trade in the wines of Burgundy and Champagne. It is situated at the point of meeting of several great roads, viz. of two from Paris, two from Switzerland, one from Strasburg, and one from Lorraine. The county and town of Befort were ceded by Austria to France in 1648. In 1659, Louis XIV. granted them to cardinal Mazarin; and in 1781 they were obtained by the duke of Valentinois, who lost them at the Revolution. The fisheries and forests, as well as the mines, are considered very productive. Befort is about thirty-five miles south-west of Colmar, and seventy in the same direction from Strasburg. Lat. 47° 38′ N., long. 6° 57′ E.

BE'FRIEND. Be and friend. See FRIEND.

BE'FRINGE. Be and fringe. See FRINGE.

BEG', *v.* / BEG'GAR, *v.*, *n. s.*, & *adj.* / BEG'GABLE, *v.* / BEG'GARY, / BEG'GING, *n.* / BEGGAR'ING, / BEGGAR'LINESS, / BEGGAR'LY, *adj.* & *adv.* / BEGGAR'FEAR, / BEGGAR'MAID, / BEGGAR'MAN, / BEGGAR'WOMAN. Ger. *beggeren*. It is probably a corruption of *baggar*, because, says the Encyclopædia Metropolitana, beggars carry with them *bags*, into which they put the alms that may be bestowed upon them. To beg, is to ask, to entreat, with a view to obtain any object. It is the gentle force of persuasion opposed to violence and demand. To *beggar*, is to reduce to a state of dependence on the gratuitous aid of others. To bring into the condition of imploring favor.

And she was clad full porely,
All in an old torne courtpy,

As she were all with dogges torne,
And both behind and eke beforne
Clouted was she *beggerly*. *Chaucer.*

He raiseth up the poor out of the dust, and lifteth up the *beggar* from the dunghill, to set them among princes. *Samuel.*

Touching God himself, hath he revealed that it is his delight to dwell *beggarly?* And that he taketh no pleasure to be worshipped, saving only in poor cottages? *Hooker.*

So as their *begging* now them failed quite;
For none would give, but all men would them wyte;
Yet would they take no pains to get their living,
But seeke some other way to gaine by giuing,
Much like to *begging*, but much better nam'd;
For many *beg*, which are thereof asham'd.
Spenser. Mother Hubbard's Tale.

On he brought me into so bare a house, that it was the picture of miserable happiness and rich *beggary*. *Sidney.*

Well, whiles I am a *beggar*, I will rail,
And say,—there is no sin, but to be rich;
And being rich, my virtue then shall be,
To say,—there is no vice but *beggary!* *Shakspeare.*

For her person
It *beggar'd* all description; she did lie
In her pavilion, cloth of gold, of tissue,
O'er-picturing Venus. *Id.*

I will ever, though he do shake me off
To *beggarly* divorcement, love him dearly. *Id.*

He finds it his best way to be always craving, because he lights many times upon things that are disposed of or not *beggable*. *Butler.*

——— thy suppliant
I *beg* and clasp thy knees; bereave me not,
Whereon I live, thy gentle look, thy aid,
Thy counsel in this uttermost distress. *Milton.*

What subjects will precarious kings regard?
A *beggar* speaks too softly to be heard. *Dryden.*

These shameful *beggars* of principles, who give this precarious account of the original of things, assume to themselves to be men of reason. *Tillotson.*

Beg, a place in Ayrshire, in the parish of Galston; celebrated for being one of the retreats of the patriotic Sir William Wallace, where, in a rude fortification, attended by only fifty of his friends, he obtained a complete victory over 200 Englishmen.

Beg, or Bey, in the Turkish government. See Bey. Beg is more particularly applied to the lord of a banner, called in the Turkish language sangiak beg. A beg has the command of a certain number of the sipahis, or horse, maintained by the province under the denomination of timariots. All the begs of a province obey one governor-general, called begler-beg, or beyler-beg, q. d. lord of lords, or of the beys of the province.

Begs, or Beghs, of Egypt, generals who have the command of the militia or standing forces of the kingdom; and are appointed to secure the country from the Arabs, as well as to protect the pilgrims in their annual expeditions to Mecca. The begs, several of whom are descended from the ancient race of the Mamalukes, are very rich and powerful, maintaining 500 fighting men each for their own guard, and the service of their court. On discontents, they have frequently risen in rebellion. They are often at variance with the bashaw, whom they have more than once imprisoned and plundered.

BEGA (Cornelius), painter of landscapes, cattle, and conversations, was born at Haerlem in 1620, and was the disciple of Adrian Ostade Falling into a dissipated way of life, he was disinherited by his father: for which reason he cast off his father's name, Begeyn, and assumed that of Bega; his early pictures being marked with the former, and his later works with the other. He had a fine pencil, and a delicate manner of handling his colors, so as to give them a look of neatness and transparence; his performances are so much esteemed in the Low Countries as to be placed among the works of the best artists. He caught the plague from a woman with whom he was deeply enamoured, and died a few days after her, aged forty-four.

Bega, St. an Irish virgin, who is said to have lived a solitary life of devotion at the spot in the county of Cumberland, where the town of St. Bees was afterwards built, and thus named after her.

BEGALLED, be and galled. See Galled.

BEGAWED, be and gawed. See Gawed.

BEGAY, be and gay. See Gay.

BEGEMDER, a fertile province of Abyssinia, bounded by Dembea on the west, Samen on the north, Angot on the east, and Amhara on the south. It includes the dependency of Lasta, and its length has been stated at 180 miles, and its breadth at sixty. There is a much greater proportion of what may be called level ground here, than in almost any of the other provinces in this alpine region. The mountains abound with iron, and afford good pasturage for the noble herds of cattle, with which Begemder is stocked. Mr. Bruce was informed that it was capable of raising 45,000 effective cavalry. The southern boundary is full of deep and rugged ravines.

BE'GET, BEGET'TER, BEGET'TING, BE'GOT, BEGOT'TEN. Be and get. Ang.-Sax. be-gettan, gettan. To obtain, to produce as effects; to produce as accidents; to generate, to procreate; to become the father of, as of children.

A yonge man called Melibeus, mighty and riche, *begate* upon his wif, that was called Prudence, a daughter which that called was Sophie. *Chaucer.*

——— next he did *beget*
An infinite increase of angels bright,
All glist'ning glorious in their Maker's light.
Spenser.

But first come the hours, which we *begot*
In Jove's sweet paradise, of day and night,
Which do the seasons of the year allot. *Id.*

——— see here be all the pleasures
That Fancy can *beget* on youthful thoughts,
When the fresh blood grows lively, and returns
Brisk as the April buds in primrose season.
Milton.

Love is *begot* by fancy, bred
By ignorance, by expectation fed. *Granville.*

Men continue the race of mankind, commonly without the intention, and often against the consent and will, of the *begetter*. *Locke.*

My whole intention was to *beget*, in the minds of men, magnificent sentiments of God and his works. *Cheyne.*

Son of the Father, first *begotten* Son!
Ere the short measuring line of time begun,
The world has seen thy works, and joy'd to see
The bright effulgence manifest in thee. *Parnell.*

BEGGHE, (St.), the founder of the order of the Beguards, and probably of that of the Beguines. She flourished about A. D. 680.

BEGHERME, an extensive country in the eastern part of central Africa, little known. It is said to have Bornou on the north, Bergoo on the east, and Cassina on the west, and to be governed by a sultan of its own, dependent on that of Bornou; according to Dr. Seetzen it has lately been annexed to Bergoo, which is also dependent upon Bornou.

BE'GILT, be and gilt. See Gilt.

BE'GIN, *v.* & *n.* } I began or begun; I have
Begin'ner, } begun. Sax. *beginnan*,
Begin'ning, } from be, or by to, and *ginan*,
Begin'ningless. } *gaan*, *gaan*, or *gan*, to go; applied to the first motion towards any act, purpose, or design; to enter upon existence, to have its original.

Mindes he our tears; or ever moued his eyen?
Wept he for ruth? or pitied he our loue?
What shall I set before, or where *begin?* *Surrey*

Thus heaping crime on crime, and grief on grief,
To loss of love adjoining loss of friend,
I meant to purge both with a third mischief,
And, in my woe's *beginner*, it to end. *Spenser.*

They *began* at the ancient men which were before the house. *Ezekiel.*

By peace we will *begin.* *Shakspeare.*

I'll sing of heroes and of kings.
Begin my muse! *Cowley.*

They are, to *beginners*, an easy and familiar introduction; a mighty augmentation of all virtue and knowledge in such as are entered before. *Hooker.*

——— if ye know,
Why ask ye, and superfluous *begin*
Your message, like to end as much in vain?
Milton.

Begin every day to repent; not that thou shouldst at all defer it; but all that is past ought to seem little to thee, seeing it is so in itself. *Begin* the next day with the same zeal, fear, and humility, as if thou hadst never *begun* before. *Taylor.*

The air was soon after the fight *begun*
Far more inflam'd by it than by the sun.
Marvell.

Youth, what man's age is like to be, doth show;
We may our end by our *beginning* know. *Denham.*

By viewing nature, nature's handmaid, art,
Makes mighty things from small *beginnings* grow:
Thus fishes first to shipping did impart,
Their tail the rudder, and their head the prow.
Dryden.

The understanding is passive; and whether or not it will have these *beginnings*, and materials of knowledge, is not in its own power. *Locke.*

These systems are so many enchanted castles; they appear to be something—they are nothing but appearances: like them, too, dissolve the charm, and they vanish from the sight. To dissolve the charm, we must *begin* at the *beginning* of them: the expression may be odd, but it is significant.
Bolingbroke. Study of History.

Rapt into future times, the bard *begun*,
A virgin shall conceive. *Pope.*

I have taken a list of several hundred words in a sermon of a new *beginner*, which not one hearer could possibly understand. *Swift.*

BE'GIRT, } Saxon *begierdan*, *begyrdan*,
Be'girted. } *gyrdan*; to close in round about; be and gird, to bind with a girdle; to shut in with a siege; to beleaguer; to block up.

Begird th' Almighty throne,
Beseeching, or besieging. *Milton.*

Or should she, confident
As sitting queen adorn'd on beauty's throne,
Descend, with all her winning charms *begirt*,
T' enamour. *Id.*

At home surrounded by a servile crowd,
Prompt to abuse, and in detraction loud:
Abroad *begirt* with men, and swords, and spears;
His very state acknowledging his fears. *Prior.*

BEGLERBEG, a governor of one of the principal governments in the Turkish empire, and next in dignity to the grand vizier. To every beglerbeg the grand seignior gives three ensigns or staves, trimmed with a horse-tail, to distinguish them from the bashaws, who have but two; and from simple begs, or sangiac begs, who have but one. Five of the beglerbegs have the title of viziers, viz. those of Anatolia, Babylon, Cairo, Romania, and Buda. The beglerbegs appear with great state, and a large retinue, especially in the camp, being obliged to bring a soldier for every 5000 aspers of rent which they enjoy. Those of Romania brought 10,000 effective men into the field. The beglerbegs are become almost independent, and have under their jurisdiction several sangiacs or particular governments, and begs, agas, and other officers, who obey them.

BEGLERBEGLIK, or Beglierbeglik, the province or government of a beglerbeg. These are of two sorts, viz. 1. Beglerbeglik, basilo, which have a certain rent assigned out of the cities, countries, and signiories allotted to the principality: and are in number twenty-two, viz. those of Anatolia, Caramania, Diarbekir, Damascus, Aleppo, Tripoli, Trebizond, Buda, Temeswar, &c. 2. Beglerbeglik, salianæ, for maintenance of which is annexed a salary or rent, collected by the grand seignior's officers with the treasure of the empire. These are in number six, viz. those of Cairo, Babylon, &c.

BE'GNAW. Be and gnaw. See Gnaw.

BE'GONE. Be and gone. Decayed or worn. Far advanced, or sunk deep, either in weal or woe. Also, the imperative *be*, and the past participle *gone*; as go, depart; generally expressing impetuosity or displeasure. As, Get out of my sight.

I was a lusty one
And faire, and riche, and yonge, and well *begone*.
Chaucer.

And witteth well, that one of the
Is with treasour so full *begone*,
That if ye happe thereupon,
Ye shall be riche men for ever. *Gower.*

Begone, I will not hear this vain excuse;
But, as thou lov'st thy life, make speed from hence.
Shakspeare.

Begone, the goddess cries with stern disdain,
Begone! nor dare the hallow'd stream to stain.
She fled, for ever banish'd from the train.
Addison.

Ungrateful wretch! *begone*, and no longer pollute my dwelling with thy baseness; *begone*, and never let me see thee again. Go from my doors; and the only punishment I wish thee, is an alarmed conscience, which will be a sufficient tormentor. *Goldsmith.*

BEGONIA, in botany, a genus of plants of the polygamia monœcia class; the characters of which are these: the flowers are of two kinds; the one is the male flower, composed of four leaves, some broader, and others narrower; the other, which produces the embryo fruit, is of the rosaceous sort, and is composed of several petals, arranged in a circular form, and placed on a foliated cup, which finally becomes a trigonal alated fruit, divided into three cells, and containing small seeds. Willdenow describes twenty-five species of this genus, which belong principally to the West India Islands. See *Transactions of the Linnæan Society*, vol. i.

BE'GORED. Be and gored. See GORE.

BE'GRAVE. Be and grave. See GRAVE.

BE'GRIME. Be and grime. See GRIME.

BE'GRIPE. Be and gripe. See GRIPE.

BE'GROW. Be and grow. See GROW.

BE'GRUDGE. Be and grudge. See GRUDGE.

BEGSHEHRI (Beïshehri) a town and captaincy in the Pachalic of Karaman-ílî, Anatolia. The town is protected by a castle built by Alá-ud-dín, the Seljúké sultán in the twelfth century. This district contains 122 smaller, and 12 larger fiefs, called by the Turks Zimárets and Ziyámets.

BEGUARDS, or BEGHARDS, the third order of the religious of St. Francis in Flanders. They were established at Antwerp in the year 1228, and took St. Begghe for their patroness, whence they had their name. From their first institution they employed themselves in making linen cloth, each supporting himself by his own labor, and united only by the bonds of charity, without having any particular rule. But pope Nicholas IV. having confirmed that of the third order of St. Francis in 1289, they embraced it in 1390. They were greatly favored by the dukes of Brabant, particularly John II. and John III. who exempted them from all contributions and taxes. See FRANCISCANS.

BEGUE, an old term for the natural mark in the mouth of a horse, which distinguishes his age. It is probably derived from the French, in which the same word signifies a stutterer.

BEGUE (Lambert le), the founder or restorer of the order of the Beguines, flourished about the end of the twelfth century.

BE'GUILE, BE'GUILERS, BE'GUILING, BE'GUILTY. Be and guile. *Guile*, from *gewiglian*, and wile, from *wiglian*, to deceive, to allure into a snare; the worst kind of wickedness; hence the general term guilt. The *beguilers* and the *beguiled* divide our species, with the exception of those who are abused and hated by both, because they have wisdom without knavery, and goodness without folly, qualities equally detestable to the deceivers and the deceived.

This miller smiled at hir nicetee,
And thought, all this n' is den but for a wile,
They wenen that no man may hem *begile*.
Chaucer.

For often he that will *begile*,
Is *guiled* with the same *guile*.
And thus the *guiler* is *beguiled*. *Gower.*

When we escape from a little wile, and know the *beguiler*, we thinke that we are *beguiled* already with other greate wiles. *Golden Book.*

Her lips, most happy each in other's kisses,
From their so wisht imbracements seldome parted,
Yet seem'd to blush at such their wanton blisses;
But, when sweet words their ioyning sweet disparted,
To th' eare a dainty musique they imparted,
Upon them fitly sate delightful smiling,
A thousand smiles with pleasing stealth *beguiling*:
Ah, that such shows of ioyes should be all ioyes exiling. *Spenser*

And often did *beguile* her of her tears,
When I did speak of some distressful stroke
That my youth suffered. *Shakspeare.*

Sweet, leave me here awhile;
My spirits grow dull, and fain I would *beguile*
The tedious day with sleep. *Id.*

By easy commutations of publick penance, for a private pecuniary mulct, thou dost at once *beguilty* thine own science with sordid bribery, and embolden the adulterer to commit that sin again without fear. *Bishop Sanderson.*

Some cursed fraud
Of enemy hath *beguiled* thee, yet unknown,
And me with thee hath ruin'd, for with thee
Certain my resolution is to die. *Milton.*

Whosoever sees a man, who would have *beguiled* and imposed upon him by making him believe a lye, he may truly say, that is the man who would have ruined me. *South.*

While o'er his lips her lovely forehead bow'd,
Won by his grateful eloquence, which sooth'd
With sweet variety the tedious march,
Beguiling time. *Glover. Leonidas.*

BEGUINAGE, the place of residence of a society of Beguines. See next article. The finest beguinage in Flanders was that of Malines. That of Antwerp was very spacious, and had two separate churches.

BEGUINES, a congregation of nuns, which must not be confounded with the Beghards, founded either by St. Begghe, or by Lambert le Begue. They were established first at Liege, and afterwards at Nivelle in 1207; and from this last settlement sprang the great number of Beguinages, which are spread over all Flanders, and which have passed from Flanders into Germany. In the latter country, some of these religious fell into extravagant errors, persuading themselves that it was possible, in the present life, to arrive to the highest perfection, even to impeccability, and a clear view of God; in short, to so eminent a degree of contemplation, that there was no necessity, after this, to submit to the laws of mortal men, civil or ecclesiastical. The council of Vienne, in 1113, condemned these errors, and abolished the order of Beguines; permitting, nevertheless, those among them, who continued in the true faith, to live in chastity and penitence, either with or without vows. It is by favor of this latter clause, that there still subsist (or at least subsisted till lately) so many communities of Beguines in Flanders; who, subsequently to the council of Vienne, conducted themselves with so much wisdom and piety, that pope John XXII. by his decretal, which explains that of his predecessor made in the council of Vienne, took them under

his protection; and Boniface VIII. in another, exempted them from the secular tribunal, and put them under the jurisdiction of the bishops. There was scarce a town in the Low Countries in which there was not a society of Beguines; and even at Amsterdam there was a very flourishing one. These societies consisted of several houses placed together in one enclosure, with one or more churches, according to the number of Beguines. There was in every house a prioress, or mistress, without whose leave they durst not stir out. They made a sort of vow, in the following terms: 'I ——— promise to be obedient and chaste as long as I continue in this Beguinage.' They observed a three years noviciate before they took the habit. They were formerly habited in different manners; some in gray, others in blue; but of late they all wore black. When they went abroad, in Amsterdam, they put on a black veil. Formerly they had as many different statutes as there were societies. In the visitations of the year 1600 and 1601, by the archbishop Matthias Hovius, they were forbidden, under the penalty of a fine, to have lap-dogs.

BEHABAN, a town of Persia, in the province of Fars. It is the capital of the district of Khogilæa, and is pleasantly situated in an extensive and highly cultivated valley, which is intersected by the rivers Zab and Jerahi. The walls are three miles in circumference, and the population is 10,000. It is 153 miles from Shiraz.

BEHALF. This word Skinner derives from *half*, and interprets it, for my half; as, for my part. It seems, to be rather corrupted from *behoof*, profit; the pronunciation degenerating easily to *behafe*; which, in imitation of other words so sounded, was written, by those who knew not the etymology, *behalf*. For my or your part or share, or sake. Whatever is done in favour, for the sake of, either in support or vindication.

> Yet this I say in hir *behalfe*
> If Helen were hir leeke,
> Sir Paris need not to disdaine
> Hir through the seas to seeke. *Turberville.*

He might, in his presence, defy all Arcadian knights, in the *behalf* of his mistress's beauty. *Sidney.*

> Michael this my behest have thou in charge,
> Take to thee from among the Cherubim,
> Thy choice of flaming warriors, lest the fiend,
> Or in *behalf* of man, or to invade
> Vacant possession, some new trouble raise;
> Haste thee, and from the paradise of God
> Without remorse drive out the sinful pair. *Milton.*

> Were but my heart as naked to the view.
> Marcus would see it bleed in his *behalf*. *Addison.*

Never was any nation blessed with more frequent interpositions of divine providence in its *behalf*. *Atterbury.*

BE'HANG. Be and hang. See HANG.

BE'HAPPEN. Be and happen. See HAPPEN.

BE'HATED. Be and hate. See HATE.

BEHA'VE, BEHA'VING, BEHA'VIOUR, } Be and have; be and haviour. Goth. haban. Ang.-Sax. habban. See HAVE and HAVIOUR.

To govern, to subdue, to discipline, its ancient and now obsolete sense. To carry, to act, to conduct ones' self. Manners, carriage, gesture, appearance. It is taken in either a good or bad sense, as he *behaved* well or ill.

The beautiful prove accomplished, but not of great spirit; and study, for the most part, rather *behaviour* than virtue. *Bacon.*

He who adviseth the philosopher, altogether devoted to the Muses, sometimes to offer sacrifice to the altars of the Graces, thought knowledge imperfect without *behaviour*. *Wotton.*

> But who his limbs with labours, and his mind
> *Behaves* with cares, cannot so easy miss.
> *Faerie Queene.*

> With such sober and unnoted passion
> He did *behave* his anger ere 'twas spent,
> As if he had but prov'd an argument. *Shakspeare.*

One man sees how much another man is a fool, when he dedicates his *behaviour* to love. *Shakspeare.*

Get ye all three into this box-tree; Malvolio's coming down this walk; he has been yonder i'the sun, practising *behaviour* to his own shadow, this half hour: observe him for the love of mockery. *Shakspeare.*

> To their wills wedded, to their errours slaves,
> No man like them, they think, himself *behaves*.
> *Denham.*

We so live, and so act, as if we were secure of the final issue and event of things, however, we may *behave* ourselves. *Atterbury.*

We are not, perhaps, at liberty to take for granted that the lives of the preachers of Christianity were as perfect as these lessons; but we are entitled to contend, that the observable part of their *behaviour* must have agreed in a greater measure with the duties which they taught. *Paley.*

BE'HEAD, BEHEADING, } Be and head. See HEAD. To head, or behead, is to take off, cut off, strike off, the head: a Gallican accomplishment, greatly in vogue during the Revolution.

His *beheading* he underwent with all Christian magnanimity. *Clarendon.*

Mary, queen of Scots, was *beheaded* in the reign of queen Elizabeth. *Addison.*

I think it was Caligula who wished the whole city of Rome had but one neck, that he might *behead* them at a blow. *Spectator.*

She (Anne Boleyn) was *beheaded* by the executioner of Calais, who was sent for, as more expert than any in England. *Hume.*

> On each side they fly,
> By chains connext, and, with destructive sweep,
> *Behead* whole troops at once. *Philips.*

Lord Clarendon relates that he (marquis of Argyle) was condemned to be hanged, which was performed on the same day; on the contrary, Burnet, Woodrow, Heath, Echard, concur in stating that he was *beheaded*; and that he was condemned upon the Saturday, and executed on the Monday. *Paley.*

BEHEADING, a capital punishment, wherein the head is severed from the body by the stroke of an axe, sword, or other cutting instrument. Decollatio, or beheading, was a military punishment among the Romans. Among them the head was laid on a cippus, or block, placed in a pit dug for the purpose; in the army, without the vallum; in the city, without the walls, at a place near the porta decumana. Preparatory to the stroke, the criminal was tied to a stake, and whipped with rods. In the early ages the blow was given with an axe, and was but clumsily performed; but in after-times with a sword, which was thought the more reputable manner of dying: when the executioners grew more expert,

and took off the head with one circular stroke. St. Paul thus says that the magistrate 'beareth not the sword in vain.' In England, beheading is the punishment of nobles, being reputed not so disgraceful as hanging. In France, during the revolutionary government, the practice of beheading by an instrument called a guillotine (so denominated from its inventor, Dr. Guillot,) was very general. It resembles an instrument long ago used for the same purpose in Scotland, called the maiden, and which is still preserved in Edinburgh. See GUILLOTINE and MAIDEN. It is doubtless the most speedy, and least painful, of capital punishments.

BE'HEARD, *be* and *heard*, past participle of the verb to hear. See HEAR.

BEHEM (Martin), an eminent geographer of the fifteenth century, was born at Nuremberg. Assuming the existence of a western continent, he is said to have applied, in 1459, to Isabella, regent of the duchy of Burgundy and Flanders, to supply him with a vessel, with which he discovered the island of Fayal, one of the Azores, or at least established a colony of Flemings there, for the discovery is claimed for Gonsalvo Velho, a Portuguese. After residing at Fayal for twenty years, in 1484 (eight years before the expedition of Columbus), according to letters of his still preserved, it is said, in the archives of Nuremberg, he induced John II. of Portugal, to intrust him with the command of an expedition to the south-west. He is said, at this time, to have discovered Brasil, and even to have sailed to the Straits of Magellan, which he mathematically delineated on a map. These letters bear date 1486; and the event is related in the Latin Chronicle of Hartman Schedl, and by Peter Mateus, who wrote on the canon law two years before the expedition of Columbus. His discoveries are likewise referred to by Cellarius and Riccioli, the first of whom mentions the service which his charts afforded Magellan; and the latter asserts that Columbus obtained direct information from Behem in Madeira. He was knighted by the king of Portugal, and otherwise honored as a person of great merit; although these rewards some writers attribute to his discovery of Congo. He died at Lisbon in in July 1506, leaving no works behing him, except the chart before mentioned, and a terrestrial globe, still in the library of Nuremberg, &c. Dr. Robertson treats the story of his discovery of America as a legend; it is certainly strange that he should leave the world without more formally claiming it; but the memoir of M. Otto, in vol. ii. of the American Philosophical Transactions, may be profitably consulted on this curious question.

BEHEMOTH, *n. s. Behemoth*, in Hebrew, signifies beasts in general, particularly the larger kind, fit for service. But Job speaks of an animal behemoth, and describes its properties. Bochart has taken much care to make it the hippopotamus, or river-horse. Sanctius thinks it is an ox. The fathers suppose the devil to be meant by it. *Calmet.*

Behold now *behemoth*, which I made with thee; he eateth grass as an ox. *Job.*

Scarce from his mould
Behemoth, biggest born of earth, upheav'd
His vastness: fleec'd the flocks and bleating rose
As plants: ambiguous between sea and land,
The river-horse and scaly crocodile. *Milton.*

Behold! in plaited mail
Behemoth rears his head. *Thomson*

BEHEMOTH is generally supposed by commentators, as well as natural historians, to mean either the elephant or the river-horse. The late Mr. Bruce endeavours to prove that the rhinoceros is the animal meant by this word. Others think that this word denotes the same animal with mammoth, a huge creature, generally supposed to be extinct; but whose bones are frequently found in marshy grounds in Asia and America. See MAMMOTH. According to the Jewish rabbin, God, in the beginning, created two behemoths, male and female; the female was killed and salted to be reserved as an entertainment for the faithful whenever the Messias shall come; the male is still living, and when the last day arrives, God will kill it, and give it to the Israelites, who shall then rise from the dead. Calmet relates that the Jews are still so convinced of these extravagant traditions, that it is a common custom to swear by the share that they are to have of Behemoth hereafter. Job xl. 15. See *Calmet's Dictionary*, and *Harmer's Observations on Scripture*, vol. ii.

BE'HELD, participle passive from BEHOLD, which see.

All hail! ye virgin daughters of the main!
Ye streams, beyond my hopes, *beheld* again! *Pope.*

BE'HEN, BEN. } Valerian roots; a name of the silene inflata or bladder campion

BE'HEST, Be and hest; Goth. *haitan*; A *Shætan*, *hatan*; Dutch, *heten*; Germ. *heissen*. command; precept; mandate; the declared will of any personage, power, or sovereignty.

To breken forword is not min entente
Behest is dette, and I would hold it fayn
All my *behest* I can no better sayn. *Chaucer.*

Her tender youth had obediently lived under her parents' *behests*, without framing, out of her own will, the forechoosing of any thing. *Sidney.*

To visit oft those happy tribes,
On high *behests* his angels to and fro
Pass'd frequent. *Milton.*

In heav'n God ever blest, and his divine
Behests obey, worthiest to be obey'd. *Id.*

The plain, by slow degrees, shall rise
Higher than erst had stood the summit hill;
For time must nature's great *behest* fulfil. *Prior.*

BEHET, BEHI'GHT, BEHO'TE, BEHO'TEN, BEHE'TEER, } See BEHEST. From hatan, to promise, is the primary sense. It also signifies to entrust; to commit; and sometimes to name, or call. See HIGHT. Likewise to command; to adjudge; to address; to intend; to reckon; to esteem.

——In right ill array
She was with storm and heat, I you *behight* (inform).
Chaucer.

False faitour, Scudamour, that hast by fight
And foule advantage this good knight dismay'd,
A knight much better than thyself *behight* (esteemed).
Spenser.

The author's meaning should of right be heard,
He knoweth best to what end he enditeth;
Words sometimes bear more than the heart *behighteth* (means). *Mirror for Magistrates.*

And him restoring unto living light,
So, brought unto his lord, where he did sit
Beholding all that womanish weake fight;
Whom soone as he beheld he knew, and thus *behight* (addressed). *Spenser.*

There it was judged, by those worthy wights,
That Satyrane the first day best had donne;—
The second was to Triamond *behight* (adjudged). *Id.*

So taking courteous conge, he *behight* (commanded)
Those gates to be unbarr'd; and forth he went. *Id.*

But now aread, old father, why of late
Didst thou *behight* (name) me born of English blood,
Whom all a faeries son do nominate? *Id.*

That most glorious house that glis'treth bright,
Whereof the keys are to thy hands *behight* (entrusted)
By wise Fidelia. *Id.*

Sir Guyon, mindful of his vow yplight,
Uprose from drowsy couch, and him addrest
Unto the journey which he had *behight* (proposed or premised). *Id.*

BEHE'W, *v.* be and hew. See HEW.

BEHIND, *prep.* } The imper. be, and the
BEHIND, *adv.* } noun hind. Goth. *hinder;*
BEHINDHAND. } Sax. *behindan, hindan,* after. Posterior in time or space, dilatory, too late. There is a distinction, however, to be observed between the meaning of after and *behind*: after respects order; *behind* respects position: one runs after a person, or stands *behind* his chair. After is used either figuratively or literally; *behind* is used only literally. See CRABBE.

Whan that thou wendest homeward by the mell,
Right at the entree of the dore *behind*,
Thou shalt a cake of half a bushel find,
That was ymaked of thin owen mele
Which that I halpe my fader for to stele.
Chaucer's Canterbury Tales.

After the overthrow of this first house of God, a second was erected; but with so great odds, that they wept, which beheld how much this latter came *behind* it. *Hooker.*

Therefore the prince, whom great affaires in mynd
Would not permit to make there longer stay,
Was forced there to leave them both *behynd*
In that good hermit's charge, whom he did pray
To tend them well, so forth he went his way.
Spenser.

All hurt *behind*, backs red, and faces pale
With flight and agued fear! Mend and charge home,
Or, by the fires of heaven, I'll leave the foe,
And make my wars on you. *Shakspeare.*

And these thy offices,
So rarely kind, are as interpreters
Of my *behindhand* slackness. *Id.*

——— his ponderous shield,
Ethereal temper, massy, large, and round,
Behind him cast. *Milton.*

Such is the swiftness of your mind,
That like the earth's, it leaves our sense *behind*.
Dryden.

What he gave me to publish, was but a small part of what he left *behind* him. *Pope.*

Consider, whether it is not better to be half a year *behindhand* with the fashionable part of the world, than to strain beyond his circumstances.
Spectator.

We cannot be sure that we have all the particulars before us; and that there is no evidence *behind*, and yet unseen, that may cast the probability on the other side. *Locke.*

In the journey of life some are left *behind*, because they are naturally feeble and slow; some because they miss the way, and many because they leave it by choice, and, instead of pressing onward with a steady pace, delight themselves with momentary deviations, turn aside to pluck every flower and repose in every shade. *Johnson. Rambler.*

BEHIRAT EL MERDJ, or KHOTAIBE, a lake of Syria, about seven or eight leagues in circumference. It has no visible outlet, and the waters not exhibiting any sensible increase by the rivers and the melting of snow which it receives, it is supposed to discharge them by some subterraneous channel. Distant twenty-one miles east of Damascus.

BEHMEN (Jacob). See BOEHMEN.

BEHN (Aphra), an authoress, descended from a good family in Canterbury, was born in the reign of Charles I. Her father's name was Johnson, whothrough the interest of lord Willoughby, to whom he was related, was appointed lieutenant-general of Surinam. Mr. Johnson died on the voyage thither; but his family reaching Surinam, settled there for some years. Here Aphra formed an intimacy with the American prince Oroonoko, and his beloved Imoinda, whose adventures she relates in her celebrated novel of that name, and which Mr. Southerne afterwards made the ground-work of one of the best tragedies in the English language. On her return to London, she became the wife of Mr. Behn, a merchant, of Dutch extraction; but her wit, abilities, and some less creditable qualifications, having brought her into estimation at the court of Charles II. she was sent over to Antwerp, where, by means of her influence over Vander Albert, a Dutchman of eminence, she, in 1666, sent home intelligence of the design formed by De Ruyter, to burn the English ships in their harbours. In her return to England she was nearly lost in a storm. From this period she devoted her life entirely to pleasure and the Muses; and her wit gained her the acquaintance of Dryden, Southerne, and other men of genius. She published Miscellaneous Poems; Histories and Novels; translated Fontenelle's Plurality of Worlds, and annexed a criticism on it; her Plays make four volumes. The character her plays should maintain in dramatic history, it is difficult to determine, as their faults and perfections are equally striking. In all, even the most indifferent of her pieces, there are strong marks of genius and understanding. Her plots are full of business and ingenuity, and her dialogue everywhere sparkles with the dazzling lustre of genuine wit. But then she has been accused of interlarding her comedies with the most indecent scenes, and giving an indulgence in her wit to the most indelicate expressions. Pope, in his characters of women, alludes to Mrs. Behn under her poetical name of Astrea:

The stage how loosely does Astrea tread,
Who fairly puts her characters to bed.

After a life intermingled with numerous disap-

pointments, she died April 16, 1689, and lies interred in Westminster Abbey.

BEHO'LD, BEHO'LDEN, BEHO'LDING, BEHO'LDER, BEHO'LDINGNESS, } Compounded of the intensive be and hold, it signifies to hold or fix the eye on an object; it is derived from the Saxon behealdan. It is sometimes employed as an interjection, in order to excite attention or admiration. *Beholden*, participle adjective. Dut. *Gehouden*. To be held, and as applied to the mind, to be held in obligation. *Beholdingness* expresses the state of being obliged. *Hold* in the sense of being under bond or obligation, is used by Gower, *Conf. Am.* book vii. and also in book viii. *Behold* is used by Wiclif, and some of the elder writers, in the sense of preference, to look on with favor.

Maistere we witen that thou art soth fast and thou techist in treuth the wey of God, and thou chargist not of ony man, for thou *beholdist* not the persone of men, therefore seye to us, what it seemeth to thee. *Wiclif. Matt.* chap. xxii.

They should consider howe deeply they wer bounden and *beholden* to hym, therefore, and with devout thankes inwardlye remember his inestimable bouty therin. *Sir Thomas More's Workes.*

His pleasure was, that for our saluacion we should to him be *beholdyng*, and not to the kepyng of the lawe. *Udall. Galathies.* cap. ii.

This olde Soudannesse
Ordeined hath the feste of which I tolde;
And to the feste, Cristen folk hem dresse.
In general ya, both yonge and olde
Ther may men fest and realtee *beholde*
And deintees, mo than I can you devise;
But all to dere they bought it or they rise.
Chaucer. Cant. Tales.

Dan Troilus, as he was wont to gide,
His yongè knightis, ledde hem up and downe
In thilke large temple on every side;
Beholding aie the ladeis of the toune,
Now here, now there; for no devocioune
Had he to none, to revin him his rest,
But gan to praise and lackin whom he lest.
Id. Troilus and Cresceide.

All sodainely she saw transfigured
Her linnen stole to robe of scarlet red,
And moone-like mitre to a crowne of gold;
That even she herself much wondered
At such a chaunge, and ioyed to *behold*
Herself adorn'd with gems and iewells manifold.
Spenser.

With him went Hope in rancke, a handsome mayd,
Of cheareful looke, and lovely to *behold*;
In silken samite she was light array'd,
And her fayre locks were woven up in gold. *Id.*

The king invited us to his court, so as I must acknowledge a *beholdingness* unto him. *Sidney.*

In this, my debt, I seem'd loth to confess,
In that I shunn'd *beholdingness*. *Donne.*

When Thessalians on horseback were *beheld* afar off, while their horses watered, while their heads were depressed, they were conceived by the spectators to be one animal. *Brown's Vulgar Errours.*

I found you next, in respect of bond, both of near alliance, and particularly of communication in studies: wherein I must acknowledge myself *beholden* to you. *Bacon.*

Horns, which such as you are fain to be *beholden* to your wives for. *Shakspeare.*

Little are we *beholden* to your love,
And little look'd for at your helping hands. *Id.*

For Brutus' sake, I am *beholden* to you. *Id.*

But I will haste, and from each bough and brake
Each plant and juiciest gourd will pluck such cheer
To entertain our angel guest, as he
Beholding shall confess, that here on earth
God hath dispens'd his bounties as in heaven.
Milton.

When out of hope *behold* her! not far off,
Such as I saw her in my dream, adorn'd
With what all earth or heaven could bestow.
To make her amiable. *Id.*

The philosophy you have condescended to reveal to us is most extraordinary. We are *beholden* to you for your instruction. *Shafteshury.*

Man looks aloft, and, with erected eyes,
Beholds his own hereditary skies. *Dryden.*

At this the former tale again he told,
With thund'ring tone, and dreadful to *behold*.
Id.

The Saviour comes, by ancient bards foretold!
Hear him, ye deaf; and all ye blind *behold!* *Pope.*

I think myself mighty *beholden* to you for the reprehension you then gave us. *Addison.*

We, who see men under the awe of justice, cannot conceive what savage creatures they would be without it; and how much *beholden* we are to that wise contrivance. *Atterbury.*

BEHO'OVE, or BEHO'VE, *v.* & *n.* BEHOOF, BEHOVE'FUL, BEHOVE'FULLY, BEHOV'ABLE, BEHO'VEDLY, BEHOVE'LY. } Sax. behopan, it is a duty. To be fit; to be meet: either with respect to duty, necessity, or convenience. It is used only impersonally with *it*.

Her majesty may alter any thing of those laws, for her own *behoof*, and for the good of the people. *Spenser.*

It is very *behooveful* in this country of Ireland, where there are waste deserts full of grass, that the same should be eaten down. *Id.*

Tell us of more weighty dislikes than these, and that may more *behoovefully* import the reformation. *Id.*

Laws are many times full of imperfections; and that which is supposed *behooveful* unto men, proveth oftentimes most pernicious. *Hooker.*

For better examination of their quality, it *behooveth* the very foundation and root, the highest well-spring and fountain of them, to be discovered. *Id.*

Madam, we have cull'd such necessaries
As are *behooveful* for our state to-morrow.
Shakspeare.

No mean recompence it brings
To your *behoof*: if I that region lost,
All usurpation thence expell'd, reduce
To her original darkness, and your sway.
Milton.

Wert thou some star, which from the ruin'd roof
Of shak'd Olympus by mischance didst fall;
Which careful Jove, in nature's true *behoof*,
Took up, and in fit place did reinstall. *Id.*

Because it was for the *behoof* of the animal, that, upon any sudden accident, it might be awakened, there were no shuts or stopples made for the ears. *Ray.*

It may be most *behooveful* for princes, in matters of grace, to transact the same publicly; so it is as

requisite in matters of judgment, punishment, and censure, that the same be transacted privately,
Clarendon.

It would be of no *behoof*, for the settling of government, unless there were a way taught, how to know the person to whom belonged this power and dominion. *Locke.*

He did so prudently temper his passions, as that none of them made him wanting in the offices of life, which it *behooved* or became him to perform.
Atterbury.

But should you lure the monarch of the brook,
Behooves you then to ply your finest art. *Thomson.*

BEHOWL, be and howl. See HOWL.

BEJA, or BEXA, an appanage of the queens of Portugal, in the province of Alentejo, comprehending a city, three towns, and twenty-one parishes. The chief place is the city of Beja, which was raised to the rank of duchy by King John II., and has a population of 6000 inhabitants. It was anciently the Roman Pax Julia. It is the see of a bishop, who is suffragan of Compostella, and lies on the side of a hill, in a delightful tract of country, seventy-two miles S. S. E. of Lisbon. Long. 7° 50′ W., lat. 37° 55. N.

BEJADE, be and jade. See JADE.

BEJAGUR (Vijayaghar), a district in the province of Malwah, situated about the twenty-second degree of north latitude. It is possessed by different Mahratta chiefs. The chief towns are Awass, Sindwah, and Gherowd.

BEJAPE, be and jape; perhaps as jabber, and gibe, from Germ. *gabbaren;* Fr. *gaber;* Ital. *gabbare*. To joke, mock, deride, delude, jeer.

Thou hast *bejaped* here dark Theseus
And falsely changed hast thy name thus.
Chaucer.

BEJAPOUR, a city of Hindostan. See VISIAPOUR.

BEJAR, a town of Estremadura in Spain, in the district of Placentia, famous for its baths. It is seated in a very agreeable valley, surrounded with high mountains, whose tops are always covered with snow. Here the duke of Bejar had a handsome palace: it was raised to a dukedom in the house of Zuniga in 1448. In this neighbourhood are forests filled with game, and watered with fine springs; also a lake abounding with excellent fish. It is pretended that this lake is so much agitated before a storm as to be heard fifteen miles off.

BEJASI, or BEIASITES, a liberal sect of Mahommedan Arabs.

BEIBENIÆ STELLÆ, a name given by some astronomers to the principal fixed stars in each constellation; otherwise called corda, though some distinguish between corda and beibeniæ stella, restraining the former to stars only of the first magnitude, and extending the latter to several of the second or third. Hermes has a treatise express De Stellis Beibeniis, published by Junctinus, in his Speculum Astrologicum, and also in his commentaries upon Jo. de Sacrobosco's book De Sphera.

BEICHLINGEN, a county of Saxony, in Thuringia, on the Lossa, and belonging, since 1815, to the king of Prussia. The castle of Beichlingen is situate not far from Kolleda, eighteen miles north of Weimar, and twenty north-east of Erfurt.

BEIDELSAR, in botany, a name by which some authors call the apocynum Syriacum, or Syrian dog's-bane, a poisonous plant.

BEJETZK, or BESHEZH, a town of Russia, in the government of Twer, the capital of a circle of the same name. Here are 3100 inhabitants; and an annual fair is held here, which lasts five days. The principal articles for sale are grain, iron, silk, and cotton stuffs. It is forty-eight miles N. N. E. of Twer, 260 south-east of St. Petersburg.

BEJIGHUR, a town in the Mahratta territories, in the province of Agra, Hindostan, about seventy miles south-west from Agra. It stands at the extremity of a low hill, and has an upper and lower fort. The surrounding country consists of ranges of low hills much covered with jungle, and separated from each other by intermediate plains, intersected by deep ravines; but upon the whole, well supplied with water.

BEILD, beeld, shelter. Old Sax. be-hlidan, to cover, to protect, to shelter.

BEILSTEIN, in mineralogy, axe-stone, a green stone, remarkable for its toughness, and used by the South Sea islanders, the New Zealanders, for making hatchets, &c. Images of idols and personal ornaments have also been made from it; numbers of which have been brought to this country, and may be seen in both public and private cabinets.

BEIN, BEINN, or BHEIN, in the Gaelic language, signifies a mountain, and accordingly makes part of the names of a considerable number of hills and mountains in Scotland; particularly,

BEIN-AN-INI, in Argyllshire, which has a seam of coals in it, that has been twice attempted to be wrought, but from various causes given up.

BEIN-AN-LOCHAN, i. e. the hill of the lake, in Argyllshire, so named from a lake which washes its base.

BEIN-ARDLANICH, in Ranoch, in the parish of Fortingal, Perthshire, about 3500 feet above the level of the sea, &c.

BEINASCHI (Giovanni Battista), historical painter, was a Piedmontese, and born in 1634. He studied at Rome, under Pietro del Po; and some say afterwards under Lanfranc. It is certain he was particularly fond of Lanfranc's works, and became so thoroughly acquainted with his style and manner, that many of his pictures are, at this day, accounted the works of Lanfranc. He was an admirable designer; his invention was lively, and he was not only expeditious but correct. His merits procured him the honor of knighthood, whence he is styled cavalier.

BEINHEIM, a fort of France, in the department of the Lower Rhine, and ci-devant province of Alsace; seated on the Sur, near its confluence with the Rhine.

BEIRA, a province of Portugal, bounded on the west by the Atlantic ocean, on the south by the Portuguese Estremadura; on the south-east by the Spanish Estremadura; on the east by the province of Tralos Montes, and Entre-Duero-e-Minho; and on the north by the river Douro.

It extends in length about thirty-four leagues, and in breadth about thirty leagues, and is divided into six commarcas. The chief episcopal city is Coimbra, which is likewise an university; and Viseu, also a bishopric, and formerly the capital of a dukedom. It contains, altogether, seven episcopal cities, 230 towns, and 900,000 inhabitants. The country is equally agreeable and fruitful, producing corn, wines, &c. in abundance, and the hills affording excellent pasture to cattle and sheep. Of late, however, the grain has been said not to be sufficient for home consumption; and that the chestnut-trees, which cover many of the mountains, supply the place of it to many of the lower orders of the people. Olive plantations are numerous, and their produce, with that of the vineyards, forms the chief exports. Mines, both of silver and lead, were formerly wrought in the mountainous districts, and rich specimens of ore have been found near Lamego; but since Portugal obtained her American possessions, the inhabitants have been prohibited from extracting the precious metals.

BEIRAM, or Bairam. See Bairam.

BEISCH (Joachim Francis), a painter of landscapes and battles, born at Ravensburgh in Suabia in 1665. He was taught the rudiments of the art by his father; and first employed at the court of Munich in painting the battles of the emperor Maximilian Emanuel in Hungary. While that prince was absent on some of his expeditions, Beisch took the opportunity of visiting Italy, and it is a sufficient testimony of the perfection to which he arrived to say, that even Solimene copied several of his landscapes. The scenes of his landscapes are agreeably chosen, and picturesque: his touch is light, tender, and full of spirit; and his style of composition resembles that of Gaspar Poussin, or Salvator Rosa. He etched several pleasing views in a good taste, but these prints are scarce. He died in 1748.

BEISSKER, in ichthyology, a name given by Gesner and others to the fish commonly called mustela fossilis. It is a species of the cobitis, distinguished by Artedi by the name of the bluish cobitis, with fine longitudinal lines on each side. Schonefeldt calls this the pæcilia, and Johnson the piscis fossilis.

BEISTON, a township in the parish of Bunbury and county of Chester, distinguished for the ruins of a fortress built in the year 1220, by Randle Blundeville, earl of Chester. It enclosed an area of about five or six acres, and was guarded on the accessible side by a vast moat cut in the solid rock. The other side rose on a mass of insulated rocks, almost perpendicularly, to the height of 366 feet. In the time of Henry VIII. this stately pile was almost dilapidated: yet in the civil wars of Charles I.'s reign, we find it in a state of defence, which rendered it a most important post. It was garrisoned for the parliament, when a Captain Sandford, a celebrated cavalier, undertook to scale its perpendicular side; and having thus gained entrance with eight men, he intimidated the commander, Captain Steel, and compelled him to surrender. Steel was soon afterwards shot for cowardice. The royalists were then besieged for upwards of four months. Prince Rupert relieved them; but the castle was a second time invested, and a blockade of eighteen weeks reduced the garrison to the most piteous extremity of famine. Nevertheless, after a gallant defence, they obtained honorable terms, and the castle was immediately dismantled by order of the parliament.

BEIT-EL-FAKIH (the Doctor's-house), a town and district of Arabia, in lat. 14° 31′ N., long 43° 2′ E. It was founded by a Mussulman saint, named Ahmid ibn Musa, in the seventeenth century, and is the great emporium of the coffee trade, the best samples of that article being produced in the neighbouring mountains. The quantity carried to Mocha, twenty-five leagues distant, is about 4000 bales of 313 pounds each, of which thirteen pounds are allowed for package, unless the English or French happen to be there, when it is greater. A bale generally costs forty-two Spanish piastres, which, with all duties and expenses, makes the coffee amount to 14½*d.* per pound. Several European powers have had residents at Beit-el-Fakih, and merchants resort thither from many parts of the east. It is subject to the imám of Yemen, and has risen considerably since the ruin of Ghalefkah, a town on the Red Sea, formerly the port of this part of Arabia.

BEIZA, or BEIZATH, in Hebrew antiquity, 1, a word signifying an egg; 2, a certain measure among the Jews; 3, a gold coin, weighing forty drachms, among the Persians, who gave out that Philip of Macedon owed their king Darius 1000 beizaths, or golden eggs, for tribute money, but Alexander the Great refused to pay them, saying, that the bird which laid these eggs was flown to another world.

BEKES, or Bekesch, a populous and thriving market town of Hungary, in the above county. It is situated on the river Black Karosch, and was formerly a place of strength. It is inhabited by aboriginal Hungarians, who profess the reformed faith, and have a parish church.

BEKESCH, a county of Hungary, bounded on the north by great Cumania and Bihar, on the east by Zarand, on the south by Arad, and on the west by Zolnok and Czongrad. It forms a square of nearly forty miles, and contains four towns, sixteen villages, and about 55,000 inhabitants, who are composed of Hungarians, Bohemians, Sclavonians, and Walachians, professing the Greek, the Lutheran, and the Catholic religions.

BEKIA, Becouya, or Bequia, a small island among the Grenadilloes, in about lat. 13° N., belonging to Britain, and chiefly valuable for turtle. It produces also wild cotton and watermelons. It lies sixty miles north-east of Grenada. The French have called it Little.

BEKISS, be and kiss. See Kiss.

BEKKER (Balthazar), a famous Dutch divine, born in 1634 at Warthuisen, in the province of Groningen. In 1679 he was chosen minister at Amsterdam, where he published The World Bewitched, an ingenious piece against the vulgar notion of spirits. It raised such a clamor against him, that he was deposed from the ministry, but the magistrates of Amsterdam

continued his pension. His opinions were, that the essence of spirits consists in thinking; that therefore spirits cannot act on bodies or other spirits: and that those texts, which speak of their actions are metaphorical. The possessions in the gospels he ascribes to mental disorders. He died in 1698.

BEKNOWE, be and know. See KNOW.

BEL, בעל, i. e. the Lord, Heb. Chald. or Belus, the supreme god of the ancient Chaldeans, or Babylonians. He was considered as the founder of the Babylonian empire; and supposed to be the Nimrod of Scripture; the same with the Phœnician Baal. See BAAL and BABYLON.

BEL, in botany, the name of a plant called by some the cucumis capparis, or caper cucumber. This plant is very imperfectly described to us; and we find among the Arabian writers, that the fruit was called by that name, as well as the whole plant. Avicenna, who gives the fullest account of it, says that it was an Indian plant, resembling in growth the common cucumber, but bearing a fruit like the caper: he tells us that this fruit was the only part of the plant used in medicine, and that it was very hot and bitter, being somewhat like ginger in the fiery taste.

BEL (Matthias), an eminent Hungarian divine, born at Orsova in 1684. He at first studied physic at Halle, but gave it up for theology, and became rector of the school at Presburg, and minister to a Lutheran congregation there. He wrote, among other works, a History of Hungary, which was so much admired, that the emperor Charles VI. appointed him his historiographer, and ennobled him; and notwithstanding his being a Lutheran, the pope in 1736 sent him his picture, and many large gold medals. He was a member of the Royal Society of London, and of the academies at Berlin and Petersburg. He died in 1749, aged sixty-five.

BEL (Charles-Andrew, son of Matthias), was born at Presburg in 1717. In 1741 he was appointed professor extraordinary at Leipsic, and in 1756 professor of poetry, and librarian to the university, with the title of counsellor of state. He wrote De Vera Origine et Epocha Hunnorum, &c. 4to.; besides which he conducted the Acta Eruditorum from 1754 to 1781. He died in 1782.

BEL AND THE DRAGON, THE HISTORY OF, an apocryphal and uncanonical book. It was always rejected by the Jewish church, and is extant neither in the Hebrew nor the Chaldee language, nor is there any proof that it ever was so. St. Jerome gives it the title of the Fable of Bel and the Dragon.

BELA, a large town of Hungary, in the county of Zips. It was one of the sixteen towns which were mortgaged to Poland in 1412, and is inhabited by German Lutherans, who gain a livelihood by the tillage of the ground, and a trade in wine, iron, and tobacco.

BELABOUR, be and labor. See LABOR.

BELAC, or BELLAC, a city of France, in the department of the Upper Vienne, and ci-devant province of Lyonnois; seated on the Vinçon, twenty miles north of Limoges, and 160 south of Paris. It contains 3291 inhabitants.

BELACED, be and laced. See LACE.

BE'LAMIE, BE'LAMOUR. Fr. *bel amie*, *bel amour*; a friend, a paramour, a gallant, a consort.

Wise Socrates
Pour'd out his life, and last philosophy,
To the fair Critias, his dearest *belamie*.
Faerie Queene.

Lo, lo, how brave she decks her bounteous bow'r
With silken curtains and gold coverlets,
Therein to shroud her sumptuous *belamour*. *Id.*

BEL'ATE, BEL'ATEDNESS. be and late. See LATE.

Fairy elves,
Whose midnight revels, by a forest side,
Or fountain, some *belated* peasant sees,
Or dreams he sees. *Milton's Paradise Lost.*

Or near Fleetditch's oozy brinks,
Belated, seems on watch to lie. *Swift.*

BELATUCADRUS, the name of an ancient British idol, recorded in old inscriptions; and supposed by Selden and Vossius to be the same with Belenus.

BE'LAY, BE'LAYED. Be and lay. To waylay, to lie in wait, to place in ambush, to overlay, to cover.

'Gainst such strong castles needeth greater might,
Than those small forces ye were wont *belay*.
Spenser.

All in a woodman's jacket he was clad,
Of Lincolne greene, *belayd* with silver lace. *Id.*

The speedy horse all passages *belay*,
And spur their smoking steeds to cross their way.
Dryden.

To BELAY, on board a ship, signifies the same as fasten. Thus they say, belay the sheet, or tack, that is, fasten it to the kevel, by winding it several times round a last, &c.

To BELAY A ROPE, a sea term; to splice: to mend a rope, by laying one end over another.

BELBEIS, a town of Egypt, near the Syrian frontier, four miles north-west of Suez. It was formerly well fortified, and the only bulwark of the kingdom on this side. Buonaparte, in 1798, availed himself of it, and strengthened the fortifications against the Turks. Its population is now scarcely a third of what it formerly was, and does not exceed 5000. It has been supposed to be the ancient Bubastum, but D'Anville rather thinks that it was Pharbothus. A junction here takes place of the canals derived from different parts of the Nile.

BELCH', *v.* & *n.* BELCH'ING. Sax. bealcan. To eject wind from the stomach; to eruct. To issue out, as by eructation. To throw out from the stomach; to eject from any hollow place. It is a word implying coarseness, hatefulness, or horror.

The bitterness of it I now *belch* from my heart.
Shakspeare.

They are all but stomachs, and we all but food;
They eat us hungerly, and, when they're full,
They *belch* us. *Id.*

This thing, nor man, nor beast, turns all his wealth
In drink; his days, his years, in liquor drenching
So quaffs he sickness down, by quaffing health;
Firing his cheeks with quenching; strangely quenching

His eyes with firing; dull and faint they roll'd;
But, nimble lips, known things and hid unfold;
Belchings, oft sips, large spits point out the tale he told. *Fletcher's Purple Island.*

Immediate in a flame,
But soon obscur'd with smoke, all heav'n appear'd,
From those deep-throated engines *belch'd*, whose roar
Imbowell'd with outrageous noise the air,
And all her entrails tore, disgorging foul
Their devilish glut, chain'd thunderbolts, and hail
Of iron globes. *Milton.*

The waters boil, and *belching* from below,
Black sands as from a forceful engine throw.
Dryden.

A triple pile of plumes his crest adorn'd,
On which with *belching* flames Chimæra burn'd.
Id.

The symptoms are, a sour smell in their fæces, *belchings*, and distensions of the bowels.
Arbuthnot on Aliment.

BE'LEAGUE, BE'LEAGUER, BE'LEAGUERER. Be and league. Germ. *lagen*, Dut. *laeghen*, *be-laeghen*, Swed. *beleagra*, Ang.-Sax. licjan, to lay, to place before, to attach, to besiege; to lie before a town, in order to force it to capitulate.

Their business, which they carry on, is the general concernment of the Trojan camp, then *beleaguered* by Turnus and the Latins. *Dryden's Dufresnoy.*

Against *beleaguer'd* heav'n the giants move;
Hills pil'd on hills, on mountains mountains lie,
To make their mad approaches to the sky. *Dryden.*

BE'LEE, *v. a.* A term used in navigation. To place in a direction unsuitable to the wind.

But he (sir) had th' election;
And I (of whom his eyes had seen the proof
At Rhodes, at Cyprus, and on other grounds
Christian and heathen) must be *be-leed*, and calm'd,
By debitor and creditor. *Shakspeare. Othello.*

BELEM, a town and fortress of Portugal, in Estremadura, about a mile from Lisbon, on the north side of the Tagus, and designed to defend the entrance of the river. Here all ships that sail up to Lisbon must bring to. The fortress is on an island in the middle of the Tagus, and on the opposite side is the station for quarantine. After the earthquake of 1755 the royal family of Portugal removed their residence to this town, where they occupied a wooden house. On 3d September, 1758, king Joseph narrowly escaped assassination in this neighbourhood. The town was founded by king Emanuel, and contains, besides the royal palace, an hospital for decayed noblemen, and a rich monastery of Hieronymites, the church of which encloses the tombs of many kings and princes of the royal family.

BELEMNITE, in mineral conchology, a species of fossil organic remains, occurring in chalk formations, but very sparingly in the upper beds of that substance. It is, however, abundant in the beds immediately below the chalk: its form is cylindrical, pointed at one end, and having a conical hollow at the other. The animal is considered to have belonged to the testaceous molluscæ, and to have been contained in a multilocular univalve shell; but the fossil does not present itself in a sufficiently perfect state to furnish an accurate knowledge of its form. Its substance is fibrous carbonate of lime, radiating perpendicularly from the axis of the cylindrical body. In the districts in which they are found they have been vulgarly called thunderbolts.

BELEM'NITES, *n. s.* From βελος, a dart or arrow, because of its resemblance to the point of an arrow. Arrowhead, or finger-stone, of a whitish, and sometimes a gold color. See BELEMNITE.

BELEMNOIDES, or BELENNOIDES, in anatomy; from βελος a dart, and ειδος form; the shooting forth of the bone called aliformis, which is the sixth in the basis of the scull.

BELENNUS, in ichthyology, the name of a small anguiliform fish, called by some blennis. It is a sea fish, and very scarce. It approaches much in figure to the English bull-head, or miller's thumb, the cottus of authors.

BELENUS, in mythology, a name which the Gauls gave to the sun, which they also called Mithra; and, as some suppose, the same with the Baal of Scripture, and the Belus of the Assyrians.

BELERIUM, in ancient geography, a promontory of the Dumnonii or Damnonii, the westmost Britons. It is now called the Land's End, in Cornwall.

BELESIS, or NANYBRUS, said by some ancient historians to have been the founder of the Babylonish empire, and, in conjunction with Arbaces the Mede, to have put an end to the kingdom of the Assyrians, by the defeat and death of Sardanapalus. Belesis is represented both as a hero and a crafty knave. It is said he was base enough to endeavour to obtain from his colleagues, by treachery, the immense treasures which had been concealed in the conflagration at Nineveh. When the secret was discovered, he was called to an account, and tried by the other chiefs who had been assistant in the war, and who, upon his confession, condemned him to lose his head. But Arbaces freely forgave him, left him in possession of the treasure, and also the independent government of Babylon, saying, The good he had done ought to serve as a veil to his crime. Under the successor of Arbaces he became a man of show and effeminacy, of whom we hear nothing more that is worthy of notice.

BELESME, or BELLESME, a town of France, in the department of the Orne, and ci-devant province of Perche; seventy-five miles south-west of Paris.

BELESTAT, a town of France, in the department of the Arriege, remarkable for a spring which regularly flows and ebbs.

BELEZ, or BELZ, a town of Austrian Galicia, circle of Zokien, not far from the river Bug, with a castle. It once belonged to Poland, and was the capital of a circle in Red Russia; but was annexed to Austria, at the first partition of Poland, in 1772. The town is large, but neither rich nor commercial. It lies in the middle of a plain, at the extremity of which is a morass; the houses are of wood, and the only buildings of note are the churches of the Catholic and Greek communions. The extensive oak forests in the neigbourhood yield abundance of potash. 148 miles east of Cracow, and 152 S.S.E. of Warsaw. Long. 24° 12′ E., lat. 50° 24′ N.

BELFAST, a town of Ireland, on the east coast of the county of Antrim; seated on the

mouth of the Lagan, at the bottom of Carrickfergus Bay. It is the chief town and port in this part of Ireland, and is connected with the lough Neagh by means of a canal. Its local situation enables it to carry on an extensive export trade in butter and salt provisions, as well as in its own manufactures of cotton, cambric, sail-cloth, and linen. Here are also some flourishing sugar and glass-houses, potteries, distilleries, &c. The government of the town is vested in the marquis of Donegal, as lord of the castle, the constable of the castle, and twelve burgesses. There is also a police magistrate. The sister kingdom of Scotland has supplied this town with such a large portion of its inhabitants that it has sometimes been called a Scottish colony. The streets are broad and regular, and the houses generally of brick. Among the best of the public buildings are the new church, the assembly room over the exchange, and the linen hall, surrounded by a garden. Here also is a good bridge over the Laggan, built of free-stone and consisting of twenty-one arches; and a number of excellent charitable institutions, to which the gentlemen of Belfast carefully attend; also a public library, and Catholic and dissenting chapels. From its press occasionally issue scientific works of great merit, as well as some well-edited newspapers. In 1798 this town contained only 3107 houses, and about 18,320 inhabitants. The population in 1824, inclusive of Ballymacarret, was nearly double the above number; numerous streets are just built, various public buildings erected, and the public schools are rapidly assuming the character of a northern university. Above fifty vessels belong to the port, the united burden of which exceeds 8330 tons, and they employ 7200 sailors. The custom-house dues have of late amounted to £400,000 per annum. Belfast returns one member to parliament; and is eighty miles from Dublin, and nine from Carrickfergus.

Belfast, a post town of the United States of America, in the district of Maine; situated on the west side of the Penobscot; 246 miles from Boston, and 591 from Philadelphia.—A town of Pennsylvania, in the county of Bedford.—A township of the United States, in Hancock county, district of Maine, on the mouth of the Penobscot.

Belfast Bay, a bay on the coast of the district of Maine, which runs into the land by three arms.

BELFLOWER, *n. s.* From bell and flower, because of the shape of its flower; in Latin *campana*. A plant. There is a vast number of the species of this plant. 1. The tallest pyramidal belflower. 2. The blue peach-leaved belflower. 3. The white peach-leaved belflower. 4. Garden belflower, with oblong leaves and flowers; commonly called Canterbury bells. 5. Canary belflower, with orrach leaves and a tuberose root. 6. Blue belflower, with edible roots, commonly called rampions. 7. Venus looking-glass belflower, &c.—*Miller*.

BELFORD, a market town in Northumberland, north of Wooller, seated on the ridge of a hill on the Berwick road, twelve miles from Alnwick, and 319 from London.

BEL'FOUNDER, *n. s.* From bell and found. He whose trade it is to found or cast bells.

Those that make recorders know this, and likewise *belfounders* in fitting the tune of their bells. *Bacon.*

BELFRY, Belfredus, is used by military writers of the middle age, for a sort of tower erected by besiegers, to overlook and command the place besieged. Belfry originally denoted a high tower, where sentinels were placed to watch the avenues of a place, and prevent surprise from parties of the enemy, or to give notice of fires by ringing a bell. In the cities of Flanders, where there is no belfry on purpose, the tower of the chief church serves the same end. The word belfry is compounded of the Teutonic *bell*, and *freid* peace, because the bells were rung for preserving the peace. Belfry is now used for that part of a steeple wherein the bells are hung. This is sometimes called by middle age writers campanile, clocaria, and tristegum. It is likewise used for the timber work which sustains the bells in a steeple, or that wooden structure to which the bells in church steeples are fastened.

BELGÆ, the ancient inhabitants of Gallia Belgica, stiled by Cæsar the bravest of the Gauls, being untainted by luxury. See Belgium. The first migration of the Belgæ into Britain took place at a very early period; some of the latest colonies were established here but a short time prior to the Roman invasion. At that time their main body inhabited the present Hampshire, Wiltshire, and Somersetshire. Those on the south coast, according to Cæsar, Com. l. v. c. 10, had passed over from different parts, and still retained the names of the states from which they descended. The last by Divitiacus, the king of the Suessiones, one of the most powerful Belgic nations of Gaul; and, having obtained a firm settlement on the British coast, he continued to exercise his authority on both sides of the channel. The Romans found in these tribes the most powerful opponents to their arms; and the honor of their final subjugation was reserved for Vespasian, who fought thirty-two battles, and took more than twenty towns, before he could regard his conquest of them as complete. After this the Romans greatly improved the country of the Belgæ by their celebrated military ways, the erection and rebuilding of towns, &c.; among the most celebrated of which were Venta Belgarum, the present Winchester, and Aquæ Solis, the modern Bath. See Bath and Winchester.

BEL'GARD, *n. s.* Fr. *belle egard*. A soft glance; a kind of regard; an old word, now wholly disused.

Upon her eyelids many graces sat,
Under the shadow of her even brows,
Working *belgards*, and amorous retreats.
Faerie Queene.

BELGICA, a town of the Ubii in Gallia Belgica, midway between the Rhine and the Roer: now called Balchusen, a citadel of Juliers.

Belgica Gallia, or Belgic Gaul, one of Cæsar's three divisions of Gaul, contained between the ocean to the north, the Seine and the Marne to the west, the Rhine to the east, but on the south at different times within different limits. Augustus, instituting everywhere a new partition of provinces, added the Sequani and Helvetii,

who till then made a part of Celtic Gaul, to the Belgic.

BELGINUM, a town of the Treviri, in Gallia Belgica: now called Baldenau, in the electorate of Triers.

BELGIUM, in ancient geography, is manifestly distinguished from Belgica, as a part from the whole, by Cæsar; who makes Belgium the country of the Bellovaci; Hirtius adding the Atrebates. But as the Ambiani lay between the Bellovaci and Atrebates, we must also add these; and thus Belgium reached to the sea, because the Ambiani lay upon it, and these three people constituted the proper and genuine Belgæ (all the rest being adventitious, or foreigners); and were the ancient inhabitants of Beauvais, Amiens, and Artois. In modern times the name has been applied by Famianus and others to the whole of the Netherlands, French, Dutch, and Austrian.

This name was given by the French, during the revolution, to that tract of country which was previously called the Austrian Netherlands. It now forms the southern portion of the kingdom of the Netherlands. See NETHERLANDS.

BELGRADE, the ancient Alba Græcorum, a city of European Turkey, the capital of Servia, seated on a hill a little above the confluence of the Save and the Danube; which near this city is very rapid, and the water singularly white. Belgrade was formerly large, strong, and populous, surrounded with a double wall, flanked with towers, and defended by a castle, built with square stones. The suburbs are still very extensive, and the appearance of the place is imposing. The dilapidated walls of the fortress enclose the principal mosque, and the residence of the pacha, or governor, of Servia. Between these walls and the other portions of the town there is a space of about 400 paces, the best part of which is towards the north of these buildings. The market-place is large; and, as Belgrade has always been an important bulwark on the north-west of Turkey, a strong garrison is maintained here, and most of the inhabitants consist of the families of the Janissaries, who defend it. The whole population is estimated at twenty or twenty-five thousand; and when the town was taken by the Austrians, in 1789, about 7000 of them were soldiers. It is, indeed, rather a military depôt than a trading city.

In the fifteenth century it was unsuccessfully attacked by Amurath II.; but was taken by Solyman, the Ottoman emperor, in 1522. Being retaken by the Imperial army, under the elector of Bavaria, in 1688, it reverted again to the Turks in 1690, with whom it remained till August 1717, when it surrendered to prince Eugene; and will always be famous in military history by the battle fought at this time in its vicinity, and which was the last grand victory obtained by that prince. It then remained in possession of the Austrians for twenty-two years, during which they were engaged in repairing and strengthening its defensive works. In 1739, however, it was given up to the Turks, on condition that these should be demolished; but so important did the possession of it always appear to the Austrians, that they again invested it in 1789, under the command of Field-marshal Laudohn. The suburbs were all carried sword in hand, and the garrison surrendered upon honorable terms. About 300 pieces of artillery, and vast military stores, were said to be found in the fortress on this capture. It was again restored to the Turks however, by the peace of Sistova, in 1791, under whom it has since remained. Long. 20° 10′ E., lat. 44° 43′ N.

BELGRADE, a small town of Romania, on the strait of Constantinople.

BELGRADE, a township of the United States, in Lincoln county, district of Maine, between the Kennebeck and the Androscoggin.

BELGRADO, a town, late of Friuli, in the Venetian territories in Italy. It stands near the river Tagliamento.

BELGRAM, a town in the Nabob of Oude's territories, twelve miles north-east from Kanoge, in lat. 27° 13′ N., long. 80° 3′ E. It is of considerable antiquity, and is still distinguished by a ruinous fort and moat. The buildings appear to have been in the best style of Mogul architecture.

BELIAL, בליעל, Heb. i. e. wicked, worthless, or unprofitable; a name given in Scripture to the devil. Thus the inhabitants of Gibeah, who abused the Levite's wife, Judges xix. 22, are styled sons of Belial. Hophni and Phineas, the high priest Eli's eldest sons, are likewise called sons of Belial, 1 Sam. ii. 12, upon account of their crimes. And that the name Belial, denotes the devil, is evident, from what St. Paul says, 2 Cor. vi. 15.

BELIDES, in mythology, the fifty daughters of Danaus. See DANAIDES.

BELIDOR (Bernard Forest de), a Catalonian engineer in the service of France, member of the Academies of Sciences at Paris and Berlin, and of the Royal Society of London; he was a celebrated mathematician, and author of a number of military tracts, in which the science of mathematics is applied to military uses. He died 1765, aged seventy.

BE'LIE, *v. a.* From be and lie. To counterfeit; to feign; to mimic. To calumniate; to raise false reports of any man. To give the lie to; to charge with falsehood. To give a false representation of any thing. To fill with lies.

> Uncle, for heaven's sake, comfortable words.
> Should I do so, I should *belie* my thoughts.
> *Shakspeare.*

> Thou dost *belie* him, Percy, thou *beliest* him;
> He never did encounter with Glendower. *Id.*

> 'Tis slander, whose breath
> Rides on the posting winds, and doth *belie*
> All corners of the world. *Id. Cymbeline.*

> Which durst, with horses' hoofs that beat the ground,
> And martial brass, *belie* the thunder's sound.
> *Dryden.*

> The shape of man, and imitated beast,
> The walk, the words, the gesture could supply,
> The habit mimic, and the mien *belie*. *Id.*

> Sure there is none but fears a future state;
> And when the most obdurate swear they do not,
> Their trembling hearts *belie* their boastful tongues.
> *Id.*

> Tuscan Valerius by force o'ercame,
> And not *bely'd* his mighty father's name.
> *Id. Æneid.*

Paint, patches, jewels laid aside,
At night astronomers agree
The evening has the day *bely'd*,
And Phillis is some forty-three. *Prior.*

In the dispute what'er I said,
My heart was by the tongue *bely'd*,
And in my looks you might have read
How much I argued on your side. *Id.*

BELI'EVE, *v.*
BELI'EVE, *n.*
BELI'EF,
BELIE'FUL,
BELIE'FULNESS,
BELI'EVABLE,
BELIE'VER,
BELIEV'ING,
BELIEV'INGLY,

The old Sax. *lyfan*, *belyfan*, is the English to *live*, to *belive*. In Pier's Ploughman to bring forth your *belyve* is to bring forth that by which you live. It was early applied to Christianity, and to religion, as the revelation of life; and as crediting the divine testimony was the means of life immortal; that credit was called life and belife—hence to *believe*. It is now of much more comprehensive import. *Belief* is credit given to something which we know not of ourselves, on account of the authority by which it is delivered. It is likewise the theological notice of faith; the creed and body of tenets held by the professors of faith; to *believe* is the act or habit of the mind; in reference to all these a *believer* is one that gives credit to a testimony; a professor of Christianity.

I sey to you, if ye hav feith and douten not, alle thinges whatevere ye *bileevynge* schulen are in preier, ye schulen take. *Wiclif. Matt.* xxi. 2.

For with the heart man *believeth* unto righteousness, and with the mouth confession is made unto salvation. *Romans.*

Sire, it is Cristes might,
That helpeth folk out of the fendes snare,
And so ferforth, she gan our lay declare,
That she the constable, or that it were eve,
Converted, and on Crist made him *beleve*.
Chaucer.

And though that I, unworthy son of Eve,
Be sinful, yet accepteth my *beleve*. *Id.*

As he that readeth Cæsar's Commentaries, *believing* the same to be true, hath hereby a knowledge of Cæsar's life and notable acts, because he *believeth* the history of Cæsar; yet it is not properly said, that he *believeth* in Cæsar, of whom he looketh for no help nor benefit, even so, he that *believeth* that all that is spoken of God in the Bible is true, and yet liveth so ungodlily, that he cannot look to enjoy the promises and benefits of God; although it may be said that such a man hath a faith and *belief* to the words of God, yet it is not properly said that he *believeth* in God, or hath such a faith and trust in God, whereby he may surely look for grace, mercy, and everlasting life at God's hand. *Homily on Faith.*

Infidels themselves did discern, in matters of life, when *believers* did well, when otherwise. *Hooker.*

If he which writeth do that which is forcible, how should he which readeth be thought to do that, which, in itself, is of no force to work belief, and to save *believers?* *Id.*

Discipline began to enter into conflict with churches, which, in extremity, had been *believers* of it. *Id.*

And sundry battels, which she had atchieved
With great successe, that her hath glorifide,
And made her famous, more than is *believed*;
Ne would I it have ween'd had I not late it prieved,
Spenser.

Superstitious prophecies are not only the *belief* of fools, but the talk sometimes of wise men. *Bacon.*

Now God be prais'd, that to *believing* souls
Gives light in darkness, comfort in despair.
Shakspeare.

Horatio says, 'tis but our fantasy;
And will not let *belief* take hold of him
Touching this dreaded sight, twice seen of us. *Id.*

When suddenly stood at my head a dream,
Whose inward apparition gently moved
My fancy to *believe* I yet had being
And liv'd. *Milton.*

The action is baptizing or immersing in waters; the object thereof, those persons of any nation, whom his ministers can by their instruction and persuasion render disciples; that is, such as do sincerely believe the truth of his doctrine, and seriously resolve to obey his commandments. *Barrow.*

Adherence to a proposition which they are persuaded, but do not know, to be true, is not seeing, but *believing*. *Locke.*

Though they are, I *believe*, as high as most steeples in England, yet a person, in his drink, fell down without any other hurt than the breaking of an arm. *Addison on Italy.*

I could not be so duped, even by the arch-enemy himself, as to be made to question the divine nature of those comforts; but I have been made to believe (which you will say, is being duped still more) that God gave them to me in derision, and took them away in vengeance. *Cowper's Correspondence.* vol. i.

BELIEF, in its general and natural sense, denotes, 1. A strong assent of the mind to the truth of any proposition. In this sense, belief has no relation to any particular kind of means or arguments, but may be produced by any means whatever. Thus, we are said to believe our senses, to believe our reason, to believe a witness, &c. And hence, in rhetoric, all sorts of proofs, from whatever topics deduced, are called πιστεις, because apt to produce belief or persuasion touching the matter in hand. 2. Belief, in its more restrained and technical sense, invented by the schoolmen, denotes that kind of assent which is grounded only on the authority or testimony of some person or persons, asserting or attesting the truth of any matter proposed. In this sense, belief stands opposed to knowledge and science. We do not say we believe that snow is white, or that the whole is equal to its parts; but we see and know them to be so. That the three angles of a triangle are equal to two right angles, or that all motion is naturally rectilinear, are not said to be things credible, but scientifical; and the comprehension of such truths is not belief but science. 3. But when a thing propounded to us is neither apparent to our senses, nor evident to our understanding, neither certainly to be collected from any clear and necessary connexion with the cause from which it proceeds, nor with the effects which it naturally produces; nor is taken up upon any real arguments, or relation thereof to other acknowledged truths; and yet, notwithstanding, appears as true, not by manifestation, but by an attestation of the truth, and moves us to assent, not of itself, but in virtue of a testimony given to it—this is said to be properly credible; and an assent to this is the proper notion of belief or faith.

BELIEVERS, in church history, an appellation given, towards the close of the first century, to those Christians who had been admitted into the church by baptism, and instructed in all the mysteries of religion. They had also access to all parts of divine worship, and were authorised to vote in the ecclesiastical assemblies. They were thus called in contradistinction to the catechumens who had not been baptised, and were debarred from these privileges.

BELI'KE, } Be and like. See LIKE.
BELI'KELY, } Belike in our older writers, and in vulgar speech, at the present day, is used for it is likely, probably, perhaps. It is sometimes used in a sense of irony, as it may be supposed.

There came out of the same woods a horrible foul bear, which fearing, *belike*, while the lion was present, came furiously towards the place where I was. *Sidney.*

Lord Angelo, *belike*, thinking me remiss in my office, awakens me with this unwonted putting on. *Shakspeare.*

Josephus affirmeth, that one of them remained in his time; meaning, *belike*, some ruin or foundation hereof. *Raleigh.*

We think, *belike*, that he will accept what the meanest of them would disdain. *Hooker.*

God appointed the sea to one of them, and the land to the other, because they were so great, that the sea could not hold them both; or else, *belike*, if the sea had been large enough, we might have gone a fishing for elephants. *Brerew. on Lang.*

BELINGELA, in botany, a name given by some authors to the malum insanum, or mad apple.

BELIO, in ancient geography, a river of Lusitania, called otherwise Limæas, Limeas, Limius, and Lethe, or the River of Oblivion: the boundary of the expedition of Decimus Brutus. The soldiers refusing, out of superstition, to cross, he snatched an ensign out of the hands of the bearer, and passed over, by which his army was encouraged to follow. He was the first Roman who ever proceeded so far, and ventured to pass. The reason of the appellation, according to Strabo, is, that in a military expedition a sedition arising between the Celtici and Turduli after crossing that river, in which the general was slain, they remained dispersed there; and from this circumstance it came to be called the river of Lethe, or Oblivion. It is now called Lima.

BELISARIUS, general of the emperor Justinian's army, who overthrew the Persians in the East, the Vandals in Africa, and the Goths in Italy. See ROME. But after all his great exploits, he was falsely accused of a conspiracy against the emperor. The real conspirators had been detected and seized, with daggers hidden under their garments. One of them died by his own hand, and the other was dragged from the sanctuary. Pressed by remorse, or tempted by the hopes of safety, he accused two officers of the household of Belisarius; and torture forced them to declare that they had acted according to the secret instructions of their patron. Posterity will not hastily believe, that a hero, who in the vigor of life had disdained the fairest offers of ambition and revenge, should stoop to the murder of his prince, whom he could not long expect to survive. His followers were impatient to fly; but flight must have been supported by rebellion, and he had lived enough for nature and for glory. Belisarius appeared before the council with less fear than indignation: after forty years service, the emperor had prejudged his guilt; and injustice was sanctified by the presence and authority of the patriarch. The life of Belisarius was spared, but his fortunes were sequestered; and, from December to July, he was guarded as a prisoner in his own palace. At length his innocence was acknowledged, his freedom and honors were restored, and death, which might be hastened by resentment and grief, removed him from the world about eight months after his deliverance. That he was deprived of his eyes, and reduced by envy to beg his bread, is a fiction of later times; which has obtained credit, or rather favor, as a strange example of the vicissitudes of fortune. The source of this idle fable may be derived from a miscellaneous work of the twelfth century, the Chiliads of John Tzetzes, a monk. He relates the blindness and beggary of Belisarius in ten verses, Chiliad iii. No. 88. 339—348. in Corp. Poet. Græc. tom. ii. p. 311. This romantic tale was imported into Italy with the language and MSS. of Greece; repeated before the end of the fifteenth century by Crinitus, Pontanus, and Volaterranus; attacked by Alciat for the honor of the law, and defended by Baronius, A. D. 561, No. 2, &c. for the honor of the church. Tzetzes himself had read in other chronicles, that Belisarius did not lose his sight, and that he recovered his fame and fortunes. The statue in the Villa Borghese at Rome, in a sitting posture, with an open hand, which is vulgarly given to Belisarius, may be ascribed with more dignity to Augustus in the act of propitiating Nemesis.—*Winkelman's Hist. de l'Art*, tom. iii. p. 266.

BELI'VE. *adv.* bilive, Sax. probably from bi and lif, in the sense of vivacity, speed, quickness. Speedily; quickly: a word out of use.

By that same way the direful dames do drive
Their mournful chariot, fill'd with rusty blood,
And down to Pluto's house are come *belive*.
Faerie Queene.

BELK, one of the Serangani islands in the Eastern seas, high, and with a bold north coast. It is partly cultivated, and the inhabitants have plenty of cocoa nuts and yellow wax. It is the most northerly of the group, which consists of three, and lies about twelve miles from Magindanao.

BELL, *v.* & *n.* } Bel, Sax. supposed by
BEL'FRY, } Skinner to come from *pelvis*,
BEL'ROPE, } Latin, a basin; Ang.-Sax.
BEL'RINGER. } bellan, signifies to bellow, and to sound a bell. A vessel, or hollow body of cast metal, formed to make a noise by the act of a clapper, hammer, or some other instrument striking against it. Bells are in the towers of churches, to call the congregation together. It is used for any thing in the form of a bell, as the cups of flowers. Belfry is a tower where bells are hung.

Get thee gone, and dig my grave thyself,
And bid the merry *bells* ring to thy ear,
That thou art crowned, not that I am dead.
Shakspeare.

Now see that noble and most sov'reign reason
Like sweet *bells* jangled out of tune. *Id.*

As the ox hath his yoke, the horse his curb, and the faulcon his *bells*, so hath man his desires.
Id. As You Like It.

Where the bee sucks, there suck I,
In a cowslip's *bell* I lie. *Id. Tempest.*

What time the native *bellman* of the night,
The bird that warned Peter of his fall,
First rings his silver *bell* t' each sleepy wight,
That should their mindes up to devotion call,
She heard a monstrous noise below the hall.
Spenser.

The humming bees, that hunt the golden dew,
In summer's heat on tops of lilies feed,
And creep within their *bells* to suck the balmy seed.
Dryden.

He has no one necessary attention to any thing but the *bell*, which calls to prayers twice a-day.
Addison. Spectator.

How too-like is this (cracked) *bell* to scandalous and ill-lived teachers! His calling is honourable: his noise is heard far enough: but the flaw which is noted in his life, mars his doctrine, and offends those ears which else would take pleasure in his teaching. *Bishop Hall.*

When cockle-shells turn siller *bells*,
And muscles grow on every tree,
When frost and snow shall warm us aw,
Then sall my love prove true to me.
Burn's Ballads.

But the sound of the church-going *bell*
These vallies and rocks never heard,
Never sighed at the sound of a knell,
Or smil'd when a Sabbath appear'd. *Cowper.*

To bear the Bell. To be the first; from the wether, that carries a bell among the sheep, or the first horse of a drove that has bells on his collar.

The Italians have carried away the *bell* from all other nations, as may appear both by their books and works. *Hakewell.*

To shake the Bells. A phrase in Shakspeare, taken from the bells of a hawk.

Neither the king, nor he that loves him best,
The proudest he that holds up Lancaster,
Dares stir a wing, if Warwick *shakes his bells.*
Shakspeare.

To Bell, *v. n.* from the noun. To grow in buds or flowers, in the form of a bell.

Hops, in the beginning of August, *bell*, and are sometimes ripe. *Mortimer.*

Bell-fashioned, *adj.* from bell and fashion. Having the form of a bell; campaniform.

The thorn-apple rises with a strong round stalk, having large *bell-fashioned* flowers at the joints.
Mortimer.

Bell. The parts of a bell, are the body or barrel, the clapper, on the inside, and the ear or cannon, by which it hangs to a large beam of wood. The matter of which it is usually made is a composition called bell-metal. The thickness of a bell's edge is usually one-fifteenth of the diameter, and its height twelve times its thickness. The best founders have a diapason, or bell-scale, wherewith they measure the size, thickness, weight, and tone, of their bells. For the method of casting bells, see Foundry.

The theory of the sound of bells belongs properly to acoustics, but we may here observe, that the most sonorous bell, according to a paper by M. Reaumur (Mem. Acad. Par. 1726), may be formed of the segment of a sphere. The sound of a bell, says the Campanalogia, arises from a vibratory motion of the parts thereof, much like that of a musical chord. The stroke of the clapper, it is evident, must change the figure of the bell, and of round make it oval; but the metal having a great degree of elasticity, that part which the stroke drove farthest from the centre will fly back again, and this even somewhat nearer to the centre than before; so that the two points, which before were the extremes of the longer diameter, now become those of the shorter. Thus, the circumference of the bell undergoes alternate changes of figure, and by means thereof gives that tremulous motion to the air, in which sound consists. M. Perrault maintains, that the sound of the same bell, or chord, is a compound of the sound of the several parts thereof; so that where the parts are homogeneous, and the dimensions of the figure uniform, there is such a perfect mixture of all these sounds, as constitutes one uniform, smooth, even sound: and the contrary circumstances produce harshness. This he proves from the bell's differing in tone according to the part you strike; and yet strike it anywhere, there is a motion of all the parts. He, therefore, considers bells as composed of an infinite number of rings; which according to their different dimensions, have different tones, as chords of different lengths have; and when struck, the vibrations of the parts immediately struck, determine the tone; being supported by a sufficient number of consonant tones in the other parts. Mr. Hawksbee, and others, have found by experiment, that the sound of a bell struck under water is a fourth deeper than in the air: though Mersennus says, it is of the same pitch in both elements. This writer has treated largely of the different metals of which bells are formed, of their figure, crassitude, and degrees of ponderosity, as they respect each other in a given series.

Bells are observed to be heard farther, placed on plains, than on hills; and still farther in valleys than on plains; the reason of which it will not be difficult to assign, if it be considered, that the higher the sonorous body is, the rarer is its medium; consequently the less impulse it receives, and the less proper vehicle it has to convey it to a distance.

The use of bells is very ancient as well as extensive. We find them among Jews, Greeks, Romans, Christians, and Heathens, variously applied, as on the necks of men, beasts, birds, horses, and sheep: but chiefly hung in buildings, either religious, as in churches, temples, and monasteries; or civil, as in houses, markets, and baths; or military, as in camps and frontier towns. Among the Jews it was ordained, that the lower part of the blue tunic which the high priest wore, when he performed certain religious ceremonies, should be adorned with pomegranates and golden bells, intermixed equally and at

equal distances. The sacred historian mentions the use and intent of them in Exod. xxviii. 33—35. 'It shall be upon Aaron to minister, and his sound shall be heard when he goeth in unto the holy place before the Lord, and when he cometh out, that he die not.' The sound of the numerous bells gave notice to the assembled people that the most awful ceremony of their religion had commenced. It was a signal, perhaps, that they should prostrate themselves at the moment in which the high priest entered the sanctuary with a vessel of incense, in order that their prayers might ascend with the column of fragrance before the throne of heaven. The kings of Persia, from a remote period, are said to have had the hems of their robes adorned like the Jewish high priests with pomegranates and golden bells.

The poet, Cowper, gives a moral turn to this circumstance, worth remembering:

> With golden bells, the priestly vest,
> And rich pomegranates bordered round,
> The need of holiness expressed,
> And called for fruit as well as sound.

The prophet Zachariah, xiv. 20, speaks of bells hung to war-horses.

Among the Greeks, those who went the nightly rounds in camps or garrisons, carried with them a little bell, which they rung at each centry-box to see that the soldiers on each watch were awake. A codonophorous, or bell-man, also walked in funeral processions, at a distance before the corpse, not only to keep off the crowd, but to advertise the flamen dialis to keep out of the way for fear of being polluted by the sight, or by the funeral music. The priest of Proserpine, at Athens, called hierophantus, rung a bell to call the people to sacrifice. There were also bells in the houses of great men to call up the servants each morning. Zonaras assures us, that bells were hung with whips on the triumphal chariots of their victorious generals, to put them in mind that they were still liable to public justice. Bells were put on the necks of criminals going to execution, that persons might be warned by the sound to avoid meeting so ill an omen, as the sight of the hangman, or the condemned criminal. Maggi has given the print of a wretch whose neck is weighed down by an enormous bell, while his back is exposed to the lash of the hangman.

The responses of the Dodonæan oracle were doubtless in part conveyed by bells. The description of it which Strabo has left (lib. vii.), the *lebetes* of Virgil, the *pelves* of Juvenal, and the *tironitus aheni* of Ausonius, admit of no other interpretation. The bells were of copper, and so suspended round the temple, that one being struck put the whole in motion; and, by the manner in which the sounds died away, the priestess framed her revelation. Plutarch mentions (Symp. xiv.) a bell in the Grecian fish-markets, which reminds the writer of this article of an exactly similar construction in the little sea-port town of his birth.

Strabo connects with this custom a curious story. A musician being deserted by his auditory in the town of Jassus, found it was the fish-bell which had attracted them away. One person alone remained, as if decidedly preferring his melody. The grateful harper approached, thanked his hearer for the honor which he paid to the art, and congratulated him on the superior purity of taste which prevented him from accompanying the rabble, which had vanished at the first stroke of the bell. 'Has the bell rung?' answered the other, 'alas! I am deaf; good morning to you!'

Ornamental bells in building, after the manner of the Chinese, were clearly in use among the Romans. Pliny (vii. 45, xxxvi. 13,) mentions the monument of Porsenna as decorated with pinnacles, each of which was surmounted by bells. The dream of Augustus transferred a similar ornament from the portals to the roof of the Capitoline Jove, (Suetonius, Oct. xci.)

On the origin of church bells, Mr. Whitaker, in his History of Manchester, observes, that bells being used, among other purposes by the Romans, to signify the times of bathing, were naturally applied by the Christians of Italy to denote the hours of devotion, and summon the people to church.

The first application of them to ecclesiastical purposes is, by Polydore Virgil and others, ascribed to Paulinus, bishop of Nola, a city of Campania, about the year 400. Hence, it is said, the names Nolæ and Campanæ were given them; the one referring to the city, the other to the country. Though others say they took the latter of these names, not from their being invented in Campania, but because it was here the manner of hanging and balancing them, now in use, was first practised. It is obvious, that during the days of early persecution, any public summons to the meetings of Christians would have betrayed them to their enemies. In Britain, bells were used in churches before the conclusion of the seventh century, in the monastic societies of Northumbria, and as early as the sixth, even in those of Caledonia. They were, therefore, used from the first erection of parish churches among us. Those of France and England appear to have been furnished with several bells. In the time of Clothair II. king of France, A. D. 610, the army of that prince was frighted from the siege of Sens, by the ringing of the bells of St. Stephen's church. The second excerption of Egbert, A. D. 750, which is adopted in a French Capitulary of 801, commands every priest, at the proper hours, to sound the bells of his church, and then to go through the sacred offices to God. And the council of Euham, in 1011, requires all the mulcts for sins to be expended in the reparation of the church, clothing and feeding the minister of God, and the purchase of church vestments, church books, and church bells. These were sometimes composed of iron in France; and in England, as formerly at Rome, were frequently made of brass. As early as the ninth century there were many cast of a large size and deep note. Ingulphus mentions, that Turketulus, abbot of Croyland, who died about A. D. 870, gave a great bell to the church of that abbey, which he

named Guthlac; and afterwards six others, viz. two which he called Bartholomew and Betelin, two called Turketul and Tatwin, and two named Pega and Bega, all which rang together; the same author says, Non erat tunc tanta consonantia campanarum in tota Anglia. Not long after, Kinseus, archbishop of York, gave two great bells to the church of St. John at Beverly, and at the same time provided that other churches in his diocese should be furnished with bells. Mention is made by St. Aldhem, and William of Malmesbury, of bells given by St. Dunstan to the churches in the west. The number of bells in every church gave occasion to a curious and singular piece of architecture in the campanile or bell-tower; an addition, which is more susceptible of the grander beauties of architecture than any other part of the edifice, and is generally therefore the principal or rudiments of it. It was the constant appendage to every parish church of the Saxons, and is actually mentioned as such in the laws of Athelstan. The Greek Christians are usually said to have been unacquainted with bells till the ninth century, when their construction was first taught them by a Venetian. But it is not true that the use of bells was entirely unknown in the ancient eastern churches, and that they called the people to church, as at present, with wooden mallets. Leo Allatius, in his Dissertation on the Greek Temples, proves the contrary from several ancient writers. He says bells first began to be disused among them after the taking of Constantinople by the Turks; who, it seems, prohibited them, lest their sound should disturb the repose of souls, which, according to them, wander in the air. He adds, that they still retain the use of bells in places remote from the intercourse of the Turks, particularly very ancient ones in Mount Athos. F. Simon thinks the Turks prohibited the Christians the use of bells, rather from political than religious reasons, as the ringing of bells might serve as a signal for the execution of revolts, &c.

In the dark ages bells were constantly baptised and anointed, oleo chrismatis, as well as exorcised and blessed by the bishop; from a belief, that when these ceremonies were performed, they had a power to drive the devil out of the air, to calm tempests, extinguish fire, and even to revive the dead. The ritual for these ceremonies is contained in the Roman pontifical; and it was usual in their baptism to give to bells the name of some saint. In Chauncey's History of Hertfordshire, p. 383, there is a relation of the baptism of a set of bells in Italy with great ceremony, a short time before the publication of that work: and so late as September, 1782, the St. James's Chronicle contains an account of the lovers of ecclesiastical ceremonies running in crowds at Paris, to see the ceremony of christening the new bells of St. Sulpicius, of which the king and queen, monsieur, and madame, were the sponsors. The bells of Osney Abbey, near Oxford, were very famous; their several names were Douce, Clement, Austin, Hautecter, or rather Hautcleri, Gabriel, and John. The bells of the parish church of Winnington, in Bedfordshire, had their names cast about the verge of every one in particular, with these rhiming hexameters:—

Nomina Campanis hæc indita sunt quoque nostris.
1. Hoc signum Petri pulsatur nomine Christi.
2. Nomen Magdalen campana sonate melode.
3. Sit nomen Domini benedictum semper in evum.
4. Musa Raphaelis sonat auribus Immanuelis.
5. Sum Rosa pulsata mundique Moria vocata.

Weev. Fun. 122.

By an old chartulary, once in the possession of Weever the antiquary, it appears that the bells of the priory of Little Dunmow in Essex, were, A. D. 1501, new cast, and baptised by the names of St. Michael, St. John the Evangelist, St. John the Baptist, the Virgin Mary, and the Holy Trinity. Weever further mentions, that bells had frequently this inscription:

Funera plango, Fulgura frango, Sabbata pango,
Excito lentos, dissipo ventos, Paco cruentos.

Durandus mentions six kinds of bells in the ancient monasteries, viz. Squilla rung in the refectory; cymbalum in the cloister; nola in the choir; nolula or dupla in the clock; campana in the steeple; and signum in the tower. Belethus has much the same; only that for squilla he puts tintinnabulum, and places the campana in the tower, and campanella in the cloister. Others place the tintinnabulum or tinniolum in the refectory or dormitory; and add another bell called corrigiuncula, rung at the time of giving discipline or to call the monks to be flogged. The cymbalum is sometimes, also, said to have been rung in the cloister, to call the monks to meat.

Abroad, bells are found of great magnitude. In the steeple of the great church at Rouen in Normandy there was in modern times a bell with the following inscription:

Je suis George de Ambois,
Qui trente cinque mille pois.
Mes lui qui me pesera,
Trente six mille me trouvera.

I am George of Ambois,
Thirtie five thousand in pois;
But he that shall weigh me,
Thirtie six thousand shall find me.

The great bell at St. Peter's in Rome weighs 18,607 pounds. In the Palazzo Vecchio at Florence, is one weighing 17,000 pounds; and it is raised 275 feet from the ground. Great Tom, of Christ Church, Oxford, weighs 17,000 pounds; of Lincoln, 9894 pounds. The bell of St. Paul's, London, 8400 pounds.

It is a common tradition that the bells of King's College chapel, in the university of Cambridge, were taken by Henry V. from some church in France, after the battle of Agincourt. They were taken down some years ago, and sold to Phelps, a bell-founder, in Whitechapel.

The Musurgia Universalis of Kircher describes a bell at Erfurth, which was cast in the year 1497, by Gerard Von de Campis, at the expense of the citizens, the neighbouring princes, and noblemen. Its thickness is a quarter and half quarter of an ell; its height four ells and three quarters; its exterior periphery fourteen ells and a half; and its weight 252 cwt. Twenty-four

men are required to ring it, besides two men who, on each side, push forward the clapper. Its sound is plainly heard at the distance of three German leagues. Its fundamental note is D sol re, but it gives also F faut, making a consonance of a minor third. But from the above account, Sir John Hawkins (Hist. of Music, iv, 211) has doubted whether the bell is ever rung at all; that is, whether it is elevated by a rope and wheel. The action of the twenty-four men is obscurely described; but the two are plainly employed not in ringing but in tolling.

A bell in the church of St. Ivan, at Moscow, weighs 127,836 pounds. But the wonder of travellers is the unsuspended bell in the Kremlin of that city. It was cast in 1653, in the reign of the empress Anne, and a fire took place in the building erected over it. The metal thus became hot, and the water, which fell upon it while in this state, occasioned a fracture, by which it was rendered useless. Dr. Clarke, in his Travels, has given the following account of it:—'It reaches from the bottom of the cave to the roof. The entrance is by a trap-door, placed even with the surface of the earth. We found the steps very dangerous; some of them were wanting, and others broken, which occasioned me a severe fall down the whole extent of the first flight, and a narrow escape for my life in not being dashed upon the bell. In consequence of this accident, a sentinel was stationed afterwards at the trap-door, to prevent people becoming victims to their curiosity. He might have been as well employed in mending the steps, as in waiting all day to say they were broken. The bell is truly a mountain of metal. They relate that it contains a very large proportion of gold and silver; for that, while it was in fusion, the nobles and the people cast in, as votive offerings, their plate and money. It is permitted to doubt the truth of traditionary tales, particularly in Russia, where people are much disposed to relate what they have heard, without reflecting on its probability. I have endeavoured, in vain, to assay a small part. The natives regard it with superstitious veneration, and they would not allow even a grain to be filed off. At the same time it may be said, the compound has a white shining appearance, unlike bell-metal in general; and perhaps its silvery aspect has strengthened, if not given rise to, a conjecture respecting the richness of its materials. On festival days, the peasants visit the bell as they would a church, considering it an act of devotion; and they cross themselves as they descend and ascend the steps. The bottom of the pit is covered by water, mud, and large pieces of timber, which, added to the darkness, render it always an unpleasant and unwholesome place, in addition to the danger arising from the steps which lead to the bottom. I went frequently there, in order to ascertain the dimensions of the bell with exactness. We applied a strong cord close to the metal in all parts of its periphery, and round the lower part where it touched the ground; taking care at the same time not to stretch the cord. From the piece of the bell broken off, it was ascertained that we had thus measured within two feet of its lower extremity. The circumference obtained was sixty-seven feet and four inches; which allows a diameter of twenty-two feet, five inches, and one third of an inch. We then took the perpendicular height from the top of the bell, and found it correspond exactly with the statement made by Hanway, namely, twenty-one feet, four inches and a half. In the stoutest part, that in which it should have received the blow of the hammer, its thickness equalled twenty-three inches. We were able to ascertain this, by placing our hands under water where the fracture had taken place, which is above seven feet high from the lip of the bell. The weight of this enormous mass of metal has been computed to be 443,772 pounds; which, if valued at three shillings a pound, amounts to £66,565. 16s. lying unemployed, and of no use to any one.

In 1684, Abraham Rudhall, of Gloucester, brought the art of bell-founding to great perfection. His descendants in succession continued the business; and by a list published by them, it appears, that at Lady-day, 1774, the family, in peals and odd bells, had cast to the amount of 3594. The peals of St. Dunstan's in the east, and St. Bride's, London, and St. Martin's in the Field's, Westminster, are in the number. See FOUNDRY.

The practice of ringing bells in change, or regular peals, is said to be peculiar to England; whence Britain has been termed the bell-ringing island. The custom seems to have commenced in the time of the Saxons, and was common before the conquest. The tolling a bell is nothing more than the producing a sound by a stroke with the clapper against the side of the bell, the bell itself being in a pendent position and at rest. In ringing, the bell, by means of a wheel and a rope, is elevated to a perpendicular; in its motion to this situation the clapper strikes forcibly on one side, and in its return downwards on the other side of the bell, producing at each stroke a sound. There were in London, formerly, many societies of ringers, particularly one known by the name of the College Youths: of this it is said the celebrated Sir Matthew Hale, was, in his youthful days, a member; and in the life of that judge, by bishop Burnet, are some facts that at least prove his attachment to such exercises. Ringing has sometimes claimed the name of a science, and peals have been composed which bear the name of inventors. Some of the most celebrated of these were composed about fifty years ago by one Patrick. This man was a maker of barometers; in his advertisements he styled himself Torricellian Operator, from Torricelli, who invented instruments of this kind. The ancient peals do not appear to have exceeded five in number. Holden, in his Treatise on the natural grounds of Harmony, remarks, that 'the completest and most perfect ring is a peal of six, in which, whether ascending or descending, the hemitone holds the middle position, as it does in both the natural and the durum hexachord; in the molle hexachord the tritonus intervenes.' cap. vi. Stowe, in his Survey of Cornhill Ward, mentions, that in 1430, a sixth bell was added to the peal of five

in the church of St. Michael; after which it was accounted the best ring of bells, for harmony and sweetness, in all England.

The theory of ringing may be completely learned from either the Campanologia (of 1733), or the Harmonia Universalis (the Latin not the French work) of Mersennus, in which he has enumerated and reduced to musical notation, the changes of the hexachord, or the Tintinnalogia, or Art of Ringing, (1668), in which every possible change of diatonic sound, from two bells to twelve, is laid down; and innumerable passages presented wholly new to musical composition. This may easily be imagined, when it is recollected, that in the simple arrangements of natural sound, without the intervention of a single flat or sharp, twelve bells produce 479,001,600 changes. Not all the changes, however, if reduced into an air, would be equally agreeable or practicable; and it is somewhat remarkable, that in the art of ringing, melody has never been studied. Mechanical order and succession has been all in all; and Dr. Burney, from whom we borrow the observation, states, that even in the clams or collision of two bells together in counterpoint, no knowledge of harmony has ever been displayed.

The number of changes upon a given number of bells is readily calculated: $S = 1 \times 2 \times 3 \times 4 \times \ldots . n$. So that the changes upon

2	bells are	2
3	———	6
4	———	24
5	———	120
6	———	720
7	———	5,040
8	———	40,320
9	———	362,880
10	———	3,628,800
11	———	39,916,800
12	———	479,001,600

No peal, beyond twelve, we believe, has ever been erected. The churches having twelve bells, in London, are St. Bride's, St. Martin's in the Fields, St. Michael's Cornhill, St. Leonard's Shoreditch, St. Saviour's Southwark, St. Giles's Cripplegate, and Christ Church Spitalfields. In the country, York Minster, Cirencester, Great St. Mary's Cambridge, St. Martin's Birmingham, St. Peter's Mancroft Norwich, St. Chad's Shrewsbury, and Payne Church Gloucestershire, have the same number.

It is calculated that twelve changes may be rung in one minute, that is 720 in an hour. On this computation, all the possible changes on twelve bells could not be rung in less than seventy-five years, ten months, and ten days.

A peal is the whole number of changes which can be rung on any given number of bells: and as the style of each peal differs according to the variation in the succession of these changes, so each peal is distinguished by a peculiar name, as times are in psalmody. The peal of regular permutations on five bells, is called a grandsire. These permutations are represented in the following diagram.

12345	13542	31254	**25143**
———	31524	32145	52413
21354	35142	23415	54231
23145	53412	24351	45321
32415	54321	42531	43512
34251	45231	45213	34152
43521	42513	54123	B 31425
45312	24153	51432	13452
54132	B 21435	15342	14325
51423	12453	13524	41352
15243	14235	31542	43125
12534	41253	35124	34215
21543	42135	53214	32451
25134	24315	52341	23541
52314	23451	25431	25314
53241	32541	24313	52134
35421	35214	42153	51243
34512	53124	B 41235	15423
43152	51342	14253	14532
B 41325	15432	12435	41523
14352	14523	21453	45132
13425	41532	24135	54312
31452	45123	42315	53421
34125	54213	43251	35241
43215	52431	34521	32514
42351	25341	35412	23154
24531	23514	53142	S 21345
25413	32154	51324	12354
52143	S 32145	15234	12345
51234	13254	12543	
15324	13245	21534	

The letter B, in the above example, signifies a bob, or an alteration in the direction of the changes. S denotes single; a term used when half the peal is rung, and, also, when one change only remains. A plain bob, grandsire bob, or single bob minor, is the peal of regular permutation on six bells. A grandsire treble is the same on seven. A bob major the same on eight. Caters the same on nine. Ten in, or bob royal, the same on ten. Cinques the same on eleven. Twelve in, or bob maximus, the same on twelve. In the grandsire treble complete, there are 5040 changes: to ring through which, admitting 720 changes in an hour (a number which cannot be kept up), seven hours would be required. It is plain that this is the most extensive complete peal which can be rung. The next in order, the bob major, contains 40,320 changes, and could not be rung even on a light peal in less than twenty-four hours, a length of time during which no eight men could stand to the labor.

These regular changes, in which the place of two bells only is altered in each round, are called plain changes. When the place of more than two bells is altered, and the changes do not succeed each other progressively, but by intervals, they are called cross changes.

The bell, the regular motion of which guides the rest, is called the hunt, and it is generally the treble bell. In the above example, the figure 1 represents the hunt; it moves from its own place into the second's place, and so on till it reaches fifth's place, which is called hunting up behind. Here it strikes two blows, called laying behind a whole pull; and it then hunts back again in the reverse order, and so on to the end

of the peal. 'The first step,' says the Campanologia, 'he (the learner) makes in this art, is to learn perfectly to set a bell, both back stroke and fore; and to have it so much at his command, as that he may be able to cut it down at either hand (being the sally or back stroke), and set it again the next pull; without which he cannot attain to any perfection or knowledge in this art. And, to make this the more easy to him, he must observe to keep the rope tight or stiff, to stand upright to his bell, not stirring, or using any ungenteel posture; which in ringing, as well as dancing, is very ridiculous. When he is master of this, he may then try to ring one round in three, four, five, or six bells, and afterwards in eight or ten, wherein, as in all ringing, the principal thing to be observed is a true and exact compass, which in music is called time, otherwise the ringing becomes very unpleasing and disturbing to the hearers, and may be compared to the nauseous music of a country fiddle-player before a company of boors and peasants going to the celebration of a homely country-wedding.' p. 11.

In the Low Countries, particularly at Ghent and Antwerp, is a species of chime termed carillons, played with great labor by a performer, the carrilloneur, upon a number of bells, disposed in a scale of tones and semitones like a harpsichord. The bass is played by pedals; the treble by violent strokes of the hands edgeways upon a series of projecting sticks, which act as keys. From this barbarous and unwieldy music, the term carillon has been applied to a small keyed instrument, imitating a peal of hand-bells, in which box hammers are made to strike iron bars of different lengths. Handel employed this instrument as an accompaniment in his air, 'O let the merry bells ring round,' in L'Allegro; and to the chorus, 'Welcome, welcome, mighty king,' in Saul. See CHIMES.

The Passing BELL was anciently rung for two purposes; one, to bespeak the prayers of the minister and all good Christians for a soul just departing; the other, to drive away the evil spirits who were supposed to wait about the house, ready to seize their prey, or to molest and terrify the soul in its passage. By the ringing of his bell, for Durandus informs us evil spirits are much afraid of bells, they were thought to be kept aloof: and the soul, like a hunted hare, gained the start, or had what is by sportsmen called law. Hence, perhaps, exclusive of the additional labor, was occasioned the high price demanded for tolling the greatest bell in the church. This dislike of spirits to bells is mentioned in the Golden Legend, by W. de Worde. It is said, the evil spirytes that ben in the regyon of thayre, doubte moche when they here the belles rongen: and this is the cause why the bells ben rongen whan it thondreth, and whan grete tempeste and outrages of wether happen, to the ende that the fiends and wycked spirytes shold be abashed and flee, and cease of the movynge of tempeste.' Lobineau observes, that the custom of ringing bells, at the approach of thunder, is of some antiquity; but that the design was not so much to shake the air and so dissipate the thunder, as to call the people to church, to pray that the parish might be preserved from disasters.

Legends Concerning BELLS, as might be expected, are endless. The bells at Canterbury are said to have rung of themselves on the murder of Thomas à Becket: but the influence of bells as exorcists has occasionally failed. The history and antiquities of Shrewsbury, by Phillips, contains the following item: 'This yere 1533 upon twelffe daye in Shrewsbury, The Dyvyll appearyd in Saint Alkmonds churche there when the priest was at high masse, with great tempeste and darknesse, so that as he passyd through the churche, he mounted up the steeple in the sayde churche, tering the wyers of the seid clocke, and put the print of hys clawes upon the 4th bell, and tooke one of the pynnacles away with hym, and for thetyme stayed all the bells in the churches within the said towne, that they could neyther toll nor ringe.' It is clear that this is simply the reference of a thunder storm to diabolical agency. We are told of a bell of St. David, which cured the King of Dublin of a mortal disease by applying it to his cheek. This was preserved in the church of Glascwm in Radnorshire. It was portable, and endowed with great virtue. Giraldus Cambrensis says, that 'a certain woman secretly conveyed this bell to her husband, who was confined in the castle of Raidergwy near Warthrenia, which Rhys, son of Gruffydd, had lately built, for the purpose of his deliverance. The keeper of the castle not only refused to liberate him for this consideration but seized and detained the bell; and in the same night, by Divine vengeance, the whole town, except the wall on which the bell hung, was consumed by fire.' A similar bell, called Bangu, was kept in all Welsh churches during Popish times. On the day of a funeral, the sexton took it to the house of the deceased. When the procession began a Psalm was sung, and the bellman sounded the Bangu in a solemn manner, till the corpse arrived at the church. Within the memory of living persons this custom is said to have prevailed in Wales. We must mention yet one more marvellous bell in Ireland, which, unless it were tied fast every night, used to wander far from home into another church! We read also of a comet, which in the time of Pope Calixtus III. cast upon the Turks all the mischief which it threatened, in consequence of the ringing of bells, by order of the pontiff, precisely at noon. *Plat. in vita.*

We may finally observe (with Stavely, on Churches,) that anciently and sometimes besides the before specified offices, an extraordinary and dreadful use was also made of bells, and that was the cursing by Bell, Book, and Candle: the manner whereof, he adds, I hope, will not be altogether impertinent here to relate; out of an ancient Festival, and the articles of the general great curse, found at Canterbury, A. D. 1562. It was solemnly thundered out once in every Quarter; 'The Fyrst Sonday of Advent, at comyng of our Lord Jhesu Cryst: the fyrst Sonday of Lenteen: The Sonday in the Feste of the Trynyte: and Sonday within the Utas (Octaves) of the blessed Vyrgin our Lady St. Mary.' At which action the prelate stands in the pulpit

in his Aulbe, the cross being lifted up before him and the candles lighted on both sides of it, and begins thus, 'By authority, God, Fader, Son, and Holy-Ghost, and the glorious Moder and Mayden, our Lady St. Mary, and the Blessed Apostles Peter, and Paul, and all Apostles, Martyrs, Confessors, Vyrgyne, and the hallows of God; All thos byn accursed that purchases writts, or letters of any leud court, or to let the processe of the law of holy church of causes that longen skilfully to christen court, the which should not be demed by none other law: And all that maliciously bereaven holy chirch of her right, or maken holy chirch lay fee, that is hallowed and blessed. And also all thos that for malyce or wrathe of parson, vicare, or priest, or of any other, or for wrongfull covetyse of himself witholden rightful tyths, and offerings, rents, or mortuaries from her own parish church, and by way of covetyse fals lyche taking to God the worse, and to hemself the better, or else torn him into another use, then hem oweth. For all chrysten man and women been hard bound on pain of deadly sin, not onlyche by ordinance of man, but both in the ould law, and also in the new law, for to pay trulyche to God and holy chirch the tyth part of all manner of encrease that they winnen trulyche by the grace of God, both with her travell, and alsoe with her craftes whatsoe they be truly gotten.' 'And then concludes all with the curse itself, thus:' 'And now by authoritie aforesaid we denounce all thos accursyd that are so founden guyltie, and all thos that maintaine hem in her sins or gyven hem hereto either help or councell, soe they be departed froe God, and all holi chirch: and that they have noe part of the passyon of our Lord Jhesu Cryst, ne of noe Sacraments, ne no part of the prayers among christen folk: But that they be accursed of God, and of the chirch, froe the sole of her foot to the crown of her hede, sleaping and waking, sitting and standing, and in all her words, and in all her werks; but if they have noe grace of God to amend them here in this lyfe, for to dwell in the pain of hell for ever withouten end: fiat: fiat. Doe to the boke: quench the candles: ring the bell: Amen, Amen.' 'And then the book is clapp'd together, the candles blown out, and the bells rung, with a most dreadful noise made by the congregation present bewailing the accursed persons concerned in that black doom denounced against them.' 236.

The uses of bells were summed up in the following distich, as well as one above mentioned:

Laudo Deum verum, plebem voco, conjuga cierum,
Defunctos ploro, pestem fugo, festa decoro.

BELL, in architecture, is used to denote the body of the Corinthian and Composite capital, by reason of its resemblance to the figure of a bell inverted. It is also called vase and tambour, and sometimes corbeil. The naked of the bell should always be even and perpendicular with the bottom of the flutings of the column. See ARCHITECTURE.

BELL, in chemistry, denotes a glass vessel placed over some matter in a state of exhalation, either to collect the vapor or gather the flowers. Chemical bells are a sort of receptacles chiefly used in preparing the oil or spirit of sulphur, for gathering and condensing fumes into a liquor.

BELL, DIVING. See DIVING.

BELL (Benjamin), member of the Royal College of Surgeons, and F. R. S. Edinburgh, was born at Dumfries, in 1749, and after a classical education, under the celebrated Dr. George Chapman, began his medical studies at Edinburgh, in 1766. About 1770 he went to Paris, and from thence to London. Mr. Bell returned to Edinburgh in 1772, with a design of settling there. His address and dexterity, and the success of his cures in the infirmary, were soon observed, but his fame was not confined to the circle of practice: in 1778 he published A Treatise on the management of Ulcers, &c. which soon passed through several editions, and was occasionally improved by the author. He afterwards incorporated it into his System of Surgery, of which Mr. Bell published the first volume in 1783 which was well received. He completed it in 1788. Before the year 1801 it had gone through six editions, receiving, as they came out, whatever improvements his experience could add: the 7th edition, considerably improved, was that year published in 7 vols. 8vo. In the year 1793 Mr. Bell published a Treatise on the Gonorrhœa Virulenta, and Lues Venerea, 2 vols. 8vo. which passed to a third edition. In 1794 appeared a more enlarged treatise on The Hydrocele, on Sarcocele or Cancer, and other diseases of the Testes, than what was contained in his System of Surgery. In 1782 Mr. Bell published the first volume of a Series of Essays on Agriculture, with a plan for the speedy improvement of land in Great Britain; the 2d volume of which he was preparing for the press immediately before his death. He also sent abroad into the world several anonymous political tracts. Mr. Bell married a daughter of the Rev. Dr. Hamilton, professor of Divinity; and some years before his death he was assisted in his professional pursuits by his eldest son, Mr. George Bell. He made different tours for the improvement of his health about the year 1800, but nature continued to fail, and he expired without any sympton of pain, on 4th April, 1806.

BELL (John), an eminent surgeon of Edinburgh, delivered anatomical lectures there, and published some professional works of considerable importance. Among these are Discourses on the Nature and Cure of Wounds, 8vo; The Anatomy of the Human Body, 3 vols. 8vo; Principles of Surgery, 3 vols. 4to. A few years ago he travelled to Italy, and dying at Rome in 1820, left for the press a work published in 1825 with the title of Observations on Italy, 4to.

BELL (Henry Nugent), a student of the Inner Temple, of considerable heraldic and genealogical research. His exertions were the means of the recovery of the dormant Huntingdon Peerage. He died October 18, 1822, on the day a verdict was given against him for a sum of money advanced to him by Mr. Cooke, an engraver, towards the investigation of a claim to an estate. He published an account of the claim to the Huntingdon peerage.

BELL (Elizabeth), of Kinvaid, and her friend Mary Gray, of Lednock, celebrated in the well known song, Bessy Bell and Mary Gray, were

both natives of Perthshire, where these estates are situated. The history of these young ladies is recorded by the ministers of Methven and Monedie, in Sir J. Sinclair's Stat. Acc. Vol. III. 604; and X. 621.

BELLA (Stefano De la), an eminent engraver, born at Florence, A. D. 1610. His father was a goldsmith; and he began to follow that business, but whilst learning to draw, Callot's prints fell into his hands; with which he was so delighted, that he prevailed upon his father to permit him to apply to engraving; and he became the disciple of Canto Gallina, the instructor of Callot. Bella at first imitated the manner of Callot, but soon adopted one, his own, which in freedom and spirit is said even to have surpassed that of his fellow pupil. He went to Paris A. D. 1642, where he formed an acquaintance with Israel Silvestre, and was much employed by Henriete, Silvestre's uncle. Some time after, Cardinal Richelieu engaged him to go to Arras and make drawings of the siege of that town by the royal army. After staying a considerable time at Paris, his family affairs obliged him to return to Florence; where he obtained a pension from the Great Duke, and was appointed to instruct Cosmo, his son, in the art of design. He was subject to violent head-aches, which terminated his life, A.D. 1664, when he was only fifty-four years of age. He drew very correctly, with great taste, and vast fertility of invention. The animation which appears in his works compensates for their slightness, which we can hardly be surprised at when we are told that he engraved 1400 plates.

BELLADONA, in botany the trivial name of a species of Atropa. See ATROPA.

BELLADONA LILY. See AMARYLLIS.

BELLAI (William du), lord of Langey, a French general who signalised himself in the service of Francis I. He was also an able negociator, so that the emperor Charles V. used to say, that Langey's pen had fought more against him than all the lances in France. He was sent to Piedmont in quality of viceroy, where he took several towns from the Imperialists. His address in penetrating into the enemy's designs was surprising. In this he spared no expense, and thereby had intelligence of the most secret of the imperial councils. It being then the interest of France to favor the king of England, he was extremely active in influencing some of the French universities to give their judgment agreeable to the desire of Henry VIII. on the subject of divorcing Queen Catharine. He was sent several times into Germany to the princes of the Protestant league, and was made a knight of the order of St. Michael. He was also a man of learning, and composed several works; the most remarkable of which was the History of his Own Times, in Latin, divided into several parts, each consisting of eight books; most of which, however, have been lost. He died at St. Saphorin, between Lyons and Roan, the 9th January, 1542, and was buried in the church of Mans.

BELLAMORESKOY-LEPOROI, a province of Russian Lapland, on the White Sea, which is called in the language of the country Bella or Bieloi More.

BELLAMY (Thomas), was born at Kingston-upon-Thames in 1745, and bred a hosier, became subsequently a publisher, and also an author. Among other things, he produced Sadaski, a novel, Lessons from Life, Miscellanies, and The Friends, a musical interlude. He was the original projector and editor of the Monthly Mirror. He died in 1800.

BELLARDIA, in botany, a genus of plants, of the class tetandria: order monogynia: CAL. four-cleft: NECT. with a four-lobed margin, surrounding the style: CAPS. two-celled, two-partible, many-seeded. One species; a native of Guiana.

BELLARMIN (Robert), an Italian jesuit, one of the best controversial writers of his time. In 1576 he read lectures at Rome with such applause, that Sixtus V. sending a legate into France in 1590, appointed him as an attendant divine, in case any dispute should arise in religion. He returned to Rome, and was raised successively to different offices, till at last, in 1599, he was honored with a cardinal's hat; his acceptance of which, it is said, they were obliged to force, by threatening him with an anathema, in case of refusal. It is certain that no jesuit ever did greater honor to his order, and that no author ever so well defended the Romish church. Protestants have owned this; for, during the space of fifty years, there was scarcely any considerable divine among them, who did not fix upon this author for the subject of his books of controversy. Notwithstanding the zeal with which he maintained the power of the pope over the temporality of kings, he displeased Sixtus V. in his work De Romano Pontifice, by insisting that the power which Jesus Christ gave to his vicegerent was only indirect, and had the mortification to see it put into the index of the Inquisition, though it was afterwards removed. He left, at his death, one half of his soul to the Virgin Mary, and the other to Jesus Christ.

BELLASPOOR, a town of Delhi, Hindostan, on the east side of the Sutubje river, which is here 100 yards broad. Lat. 31° 35′ N., long. 76° 21′ E. It is well built, and exhibits a regularity not often seen in this part of Hindostan. The streets are roughly paved, and the houses built of stone and mortar. From Bellaspoor, fertile valleys, though not wide, extend to Bipolie; and it is the residence of the ranny, or female ruler of the Calowr territory.

BELLATRIX, in astronomy, a ruddy glittering star of the second magnitude, in the left shoulder of Orion. It takes its name from bellum, war, as being anciently supposed to have a great influence in kindling wars, and forming warriors.

BELLE, BELL'YCHE, BEL'DAM, BEL'SIRE, BELL'IBONE. *Belle*, Fr., from the Latin *bellus*, is applied to the female, as beau to the male. *Beldam*, now a term of derision and reproach, literally signifies fair lady. *Bellibone*, bonny belle; bonny lass; *Bellyche* occurs in Pier's Plouhman. *Beldam*, in Ford, simply, as an aged woman; and Shakspeare applies it to the earth,—shakes the old beldame earth: he uses it, however, in its common acceptation. *Belsire* occurs in Drayton.

Who this land in such estate maintain'd,
As his great *belsire* Brute from Albion's heirs it won.
Drayton.

Pan may be proud that ever he begot
Such a *bellibone*,
And Syrinx rejoice that ever was her lot
To bear such a one. *Spenser.*

PER. I saw the bouncing *bellibone*,
WILL. Hey, ho. *Bonibell*,
PER. Tripping over the dale alone,
WILL. She can trip it very well.
Id. Shepherd's Calendar.

——— What motive could compel
A well-bred lord t' assault a gentle *belle?*
O say, what stranger cause, yet unexplor'd,
Could make a gentle *belle* reject a lord. *Pope.*

BELLEAU (Remi), a French poet, born at Nogent le Rotrou. He lived in the family of Renatus of Lorraine, Marquis of Elbeuf, general of the French galleys; and attended him in his expedition into Italy in 1557. This prince highly esteemed Belleau for his courage and abilities, and entrusted him with the education of his son, Charles of Lorraine. Belleau was one of the seven poets of his time, who were denominated the French Pleiades. He translated the odes of Anacreon, but is thought not to have preserved all the natural beauties of the original. His pastoral pieces are most in esteem. He also wrote an excellent poem on the Nature of Precious Stones; he died at Paris in 1577, in the family of the Duke d'Elbeuf.

BELLE DE NUIT, in botany, a name given by the French to the flower of the jalap.

BELLEFOREST (Francis de), a French author, born in Guienne in 1530. He was seven years of age when he lost his father; but his mother, though left in poor circumstances, contributed all in her power to his education. He was supported some years by the queen of Navarre, sister to Francis I. Some time after, he went to study at Bourdeaux, then at Toulouse, and at last at Paris; where he became acquainted with several men of learning, and was honored with the friendship of many persons of quality. He wrote, 1. A History of the Nine Charleses of France. 2. Annotations on the Books of St. Augustine. 3. An Universal History of the World. 4. The Chronicles of Nicholas Gillet augmented. 5. An Universal Cosmography. 6. Annals, or a General History of France: and many other works. He died in 1583.

BELLEGARDE, a strong barrier town of France, in the department of the Eastern Pyrenees, and ci-devant province of Roussillon, on the frontiers of Catalonia. It commands a passage through the Pyrenean mountains. Early in the revolutionary war it was taken by Spain, and stood a severe siege by the French in July and Aug. 1794; but was obliged to surrender at discretion on the 17th of September to General Dugommier, who named it Sud-Libre. It is four miles south-east of Ceret, and fifteen south of Perpigan.

BELLEGARDE, a town of France, in the department of the Saone and Loire, and late province of Burgundy, seated on the Saone, fifteen miles north-east of Chalons. Long. 5° 10′ E., lat. 46° 57′ N.

BELLEISLE, an island of France, called also BELLE-ISLE-EN-MER, 115 miles from the coast of the department of the Morbihan, in the ci-devant Brittany. It is the largest of the French European islands, being fifteen miles long and five broad. It is a mixture of craggy rocks and fertile soil; but the inhabitants are very poor, and the principal trade carried on in it is the curing of pilchards. There are three harbours in the island, every one of which is defective, either in being exposed, shallow, or dangerous of entrance. Its chief town is Le Palais, besides which it contains three county towns, 103 villages, and about 5000 inhabitants. In 1742 it was erected into a duchy, in favor of Marshal Belleisle. The town of Palais has a citadel fronting the sea, fortified principally by horn-works, provided with two dry ditches, the one next the counterscarp, and the other so contrived as to secure the interior fortifications. This citadel is divided from the larger part of the town by an inlet of the sea, over which there is a bridge of communication. In this state was the island in 1761, when an expedition was undertaken against it by a British fleet, under the command of Commodore Keppel, having on board a considerable land force, commanded by General Hodgson. The fleet sailed from Spithead on the 29th of March, and arrived before Belleisle on the 7th of April. The attempt to land was made in three places with great resolution; but the British were at last repulsed, with the loss of 500 men. It was not before the 25th of April that the weather allowed a second attempt, which was successful, though the assailants had many obstacles to encounter. The French were driven into Palais, and there the chevalier de St. Croix, a brave and experienced officer, resolved to hold out to the last extremity. It was not till the 7th of June that he capitulated, and the garrison marched out with the honors of war. At this siege the marine corps, then newly formed, gave the first signal proofs of that intrepidity, discipline, and fidelity, for which they have ever since been so much distinguished. The island was restored to the French by the treaty of 1763. Long. 3° 6′ W., lat. 47° 18′ N.

BELLE-ISLE, an island of North America, lying at the mouth of the strait between New Britain and the north end of Newfoundland; whence the passage between them is called the Straits of Belle-Isle. The island is twenty-one miles in circuit, and the nearest land of the Labrador coast is sixteen miles distance. It has a harbour for fishing vessels, and a cove which will admit shallops. Long. 55° 15′ W., lat. 51° 58′ N.

BELLENDEN, or BALLANTINE (William), a Scottish writer, who flourished in the beginning of the seventeenth century, was professor of humanity, or belles-lettres, at Edinburgh, and master of the requests to James I. of England. But both appointments are supposed to have been only nominal, since he appears to have resided almost constantly at Paris, where, by the favor of his sovereign, he was enabled to live in easy circumstances. There he published in 1608 his Cicero Princeps, a singular work; in which he extracted, from Cicero's writings, detached passages respecting monarchial government, with

the line of conduct to be pursued, and the virtues proper to be encouraged by the prince himself. This treatise, when finished, he dedicated to the son of his master, Henry, Prince of Wales. In 1612 he published a work of a similar nature, called Cicero Consul, Senator Senatusque Romanus. He now conceived a plan of a third work, De Statu prisci Orbis, which was to contain a history of the progress of government and philosophy, to their various degrees of improvement under the Hebrews, Greeks, and Romans. He proceeded so far as to print a few copies of this work in 1615, when it was suggested to him that his treatises De Statu Principis, De Statu Reipublicæ, and De Statu Orbis, being on subjects so nearly resembling each other, there might be a propriety in uniting them into one work, by republishing the whole under the title of Bellendenus de Statu. With this view he recalled the few copies of his last work, and the three treatises appeared together under the new title in 1616. These pieces were reprinted by the late Dr. Parr. He inscribed them to Mr. Burke, Lord North, and Mr. Fox, whose talents and virtues he celebrates in a preface of seventy-six pages, and enters upon a very free and bold discussion of public men and measures, under names borrowed from antiquity. Bellenden wrote another work, published after his death, De tribus Luminibus Romanorum, whom he conceives to be Cicero, Seneca, and the elder Pliny. Dr. Middleton has been charged with borrowing not only the matter, but the arrangement, of his Life of Cicero, from Bellenden, without the least acknowledgment.

BELLENDENA, in botany, so called by Mr. Brown, in honor of John Bellenden Ker, Esq. a scientific botanist; class tetrandria, order monogynia: natural order proteaceæ. Its essential characters are: PET. four, regular and spreading: COR. white, and soon falling: STAM. inserted into the receptacle: GERM. two-seeded: STIG. simple: CAPS. without wings, not bursting: SEEDS one or two. 1. B. montana, mountain bellendena.—The only known species; found by Mr. Brown on the mountains of Van Diemen's land, but as yet unknown in our gardens. This is a perfectly smooth shrub: the leaves are scattered, flat; three-cleft at the extremity: flowers scattered, rarely in pairs: seed-vessel colored, furrowed along one edge.

BELLER, Bellay, or Belley, a town of France, in the department of the Ain, and capital of the ci-devant district of Bugey; seated near the Rhone, among the hills, on the borders of Mont Blanc, twelve or sixteen miles north-west of Chamberry, and 250 south-east of Paris.

BELLEROPHON, or Bellerophontes, in fabulous history, the son of Glaucus, king of Epirus, happening accidentally to kill his brother, he fled to Prœtus, king of Argos, who gave him a hospitable reception: but Sthenobea, his queen, falling in love with him, and finding that nothing could induce him to injure his benefactor, she accused him to her husband of an attempt to violate her honor. Prœtus, however, not willing to infringe the laws of hospitality, sent him to Iobates, king of Lysia, and father of Sthenobea, with letters desiring him to put him to death; whence the proverb, Bellerophontis literas afferet, equivalent to carrying the letters of Uriah. That prince, at the receipt of these letters, was celebrating a festival, which prevented Bellerophon's destruction. Iobates, however, sent him in the mean time to subdue the Solymi, the Amazons, and Lysians, and thought to get rid of him by exposing him to the greatest dangers; but by his prudence and courage he came off victorious. Iobates next employed him to destroy the Chimæra: when Minerva, or, according to others, Neptune, in consideration of his innocence, furnished him with the horse Pegasus, by whose assistance he killed the Chimæra. Iobates, on his return, being convinced of his truth and integrity, and charmed with his heroic virtues gave him his daughter Philonoe in marriage, and declared him his successor; which when Sthenobea heard, she killed herself. Bellerophon at length growing vain with his prosperity, resolved, by the assistance of Pegasus, to ascend the skies; when Jupiter checked his presumption, by striking him blind; on which he fell down to the earth, and wandered till his death in contempt and misery: but Pegasus mounting into heaven, Jupiter placed him among the constellations.

Belles Lettres.—Of the meaning of this term no precise definition has yet been given. It appears to be a vague designation, under which every one may include whatever he pleases. Sometimes we are told, that by the belles lettres is meant the knowledge of the arts of poetry and oratory; sometimes that the true belles lettres are natural philosophy, geometry, and other essential parts of learning; and sometimes that they comprehend the art of war, by land and sea. In treating on the belles lettres, some even talk of the use of the sacraments, &c. See Rollin on the Belles Lettres. Some comprehend under the term all those instructive and pleasing sciences which occupy the memory and the judgment, and do not make part either of the superior sciences, or of the polite arts (see Arts), or of mechanic professions. hence they make history, chronology, geography, genealogy, blazonry, philology, &c. the belles lettres. In a word, it were an endless task to attempt to enumerate all the parts of literature which different learned men have comprehended under this title.

BELLEVILLE, a town of France, in the department of the Rhone, and ci-devant district of Beaujolois, seated near the Saone. Wine is its principal article of commerce.

BELLEVOIS, painter of sea-pieces, is known through all parts of Europe, though no particulars have been handed down concerning his life. He died in 1684. His subjects are views of havens, sea-ports, shores, calms, and storms at sea. In his calms he shows peculiar excellence. His pictures are often in public sales; and those of his best style are sold pretty high.

BELHEIM, a large market town in the circle of the Rhine, and district of Spire, subject to Bavaria. The population, which amounts to 1500, is partly Catholic, partly Calvinistic, and partly Lutheran. The first two persuasions have churches.

BELLICA COLUMNA, in antiquity, a column near the temple of Bellona, from which the consuls or feciales threw javelins towards the enemy's country, by way of declaration of war.

BELLI'CAL, BELLI'COUS, BELLI'QUE, BELLI'GERENT. } Latin, *bellum*, *bellicum*, warlike; waging war. Old Douglas introduces, in his translation of the Æneid, the word *bellical* in the sense given. Feltham, in his Resolves, denominates Cæsar 'the bellique Cæsar.'

Never mind, brother Toby, he would say, by God's blessing we shall have another war break out again some of these days; and when it does the *belligerent* powers, if they would hang themselves, cannot keep us out of the play. *Sterne.*

BELLICULI, or BELLIRICI MARINI, among naturalists, denote a species of sea-shells of an umbilical figure, sometimes of a white color, spotted with yellow; and sometimes of a yellow, streaked with black lines.

BELLIDUFF, an ancient tumulus, in the parish of Meigle, Angus-shire, which tradition says is the spot where Macbeth fell. At some distance, a stone of granite, twenty tons in weight, stands almost erect, to commemorate, it is said, the death of one of his generals. 'But, (Dr. Playfair, who records this tradition, observes that) that tyrant, it is more probable was slain at Lumphanan, in the Mearns.'

BELLIE, from Beul aith, Gaelic, i. e. the mouth of the Ford; a parish of Scotland, situated in Banffshire (except the town of Fochabers, which lies in the county of Murray,) extending from north to south about six miles, and from east to west nearly four, on the left bank of the river Spey. It contains about 1900 inhabitants. The soil is abundantly fertile in grain, sown grass, potatoes, and pasturage for cattle. Among its spontaneous productions is the rare plant, called satyrium repens. The town of Fochabers lies on the other side of the river, and the parish church is now built there. A handsome bridge has been thrown over the Spey at this place by the duke of Gordon. On a rising ground stands Gordon Castle, the seat of the duke of Gordon, the front of which is 568 feet in length. Near this place the duke has a capital salmon fishery on the Spey.

BELLING, applied to hops, denotes their opening and expanding to their customary shape, supposed to bear some relation to that of a bell. Hops blow towards the end of July, and bell the latter end of August or the beginning of September.

BELLINGHAM'S BAY is on the west coast of America, in the gulf of Georgia, extends from north to south about twelve miles, and has everywhere good anchorage. The bordering shores are high and rocky, but the interior consists of beautiful lawns.

BELLINI (Gentil), a Venetian painter, born in 1421. He was employed by the republic of Venice: and to him and his brother John, the Venetians are indebted for the beautiful paintings which are to be seen in the council-hall. Mahomet II. emperor of the Turks, having seen some of his performances, was so struck with them, that he wrote to the republic, entreating them to send him. Bellini accordingly went to Constantinople, where he executed many excellent pieces. Amongst the rest, he painted the decollation of St. John the Baptist, whom the Turks revere as a great prophet. Mahomet admired the proportion and shadowing of the work; but he remarked one defect in regard to the skin of the neck, from which the head was separated; and, in order to prove the truth of his observation, he sent for a slave and ordered his head to be struck off. This sight so shocked the painter, that he could not be easy till he had obtained his dismission; which the grand seignor granted, and made him a present of a gold chain. The republic settled a pension upon him at his return, and made him a knight of St. Mark. He died in 1501

BELLINI (John), brother to Gentil, painted with more art and sweetness; and died in 1512, aged ninety.

BELLINI (Laurence), an eminent physician, born at Florence in 1643. After having finished his early education, he went to Pisa, where he was assisted by the generosity of the grand duke Ferdinand II. and studied under two of the most learned men of that age, Oliva and Borelli. At twenty years of age he was chosen professor of philosophy at Pisa, but had acquired such a reputation for his skill in anatomy, that the grand duke procured him a professorship in that science. This prince was often present at his lectures. About thirty years after, Bellini, now in his fiftieth year, accepted of an invitation to Florence, where he practised physic with great success, and was advanced to be first physician to the grand duke Cosmo III. He wrote in Latin: 1. An Anatomical Discourse on the structure and use of the Kidneys. 2. A Speech by way of thanks to the serene duke of Tuscany. 3. Of the Urine and Pulse, of Blood-letting, Fevers, and Diseases of the Head and Breasts. 4. Several Tracts concerning urine, the motion of the heart, and bile, &c. He died January 8th, 1703, His works were read and explained publicly, during his life, by the famous Scotch physician, Dr. Pitcairn, of Leyden.

BELLINZONA, a district of Switzerland, on the east bank of the Ticino. It has for boundaries the country called the Gray League of the Grisons, the lake of Como, and the districts of Riviera, Locarno, and Lugano, containing 530 square miles, 46,000 inhabitants, and twenty parishes. On the re-organisation of the Swiss republic in 1798, Bellinzona constituted for some time an independent canton, but was formed in 1801, along with the other Italian districts of Switzerland, into the canton of the Ticino, of which the town of Bellinzona is capital.

BELLINZONA, a town of Switzerland, formerly the capital of the preceding district, and now of the canton of the Ticino, is at the extremity of a valley of the same name, where two projecting rocks leave only sufficient room for the course of the Ticino, and the road to Milan. The town is built on these rocks, and forms the main pass on the Italian side of mount St. Gothard. It contains 1500 inhabitants, an old citadel (formerly the residence of the governor of the district), a

collegiate church, and three convents. It is well built, has its own magistrates, and is much benefited by the continual passage of merchandise between Switzerland and Italy. It suffered much in the campaign of the French and Russians in 1799. Twenty-five miles S.S.W. of Como, and forty south of Zurich.

BELLIRICI MARINI See BELLICULI.

BELLIS, in botany, the daisy; a genus of the syngenesia order, and the polygamia superflua class of plants; ranking in the natural method under the forty-ninth order, compositæ discoides. The receptacle is naked and conic; there is no pappus; the calyx is hemispherical, with equal scales; and the seeds are ovated. There are three species, and many varieties. 1. B. annua, with leaves on the lower part of the stalk, is a low annual plant growing naturally on the Alps, and the hilly parts of Italy. 2. B. hortensis, the garden daisy, with a large double flower. 3. B. perennis, the common daisy, with a naked stalk, and one flower, grows naturally in pasture lands in most parts of Europe. It is often a troublesome weed in the grass of gardens, and so is never cultivated.

BELLIS MAJOR. See CHRYSANTHEMUM.

BELLIUM, in botany, bastard daisy; a genus of plants of the class syngenesia, order polygamia superflua. Generic character is receptacle naked; seeds conical; crown paleaceous, of eight leaves; awned, and furnished with a pappus: leaflets of the calyx equal. It is a genus allied to bellis, containing two species, one of which is a native of Italy, and the other of the Levant.

BELL-METAL, a composition of tin and copper melted together, which is more sonorous than either of these ingredients taken apart. The ordinary proportion is about twenty-two or twenty-three pounds of tin to 100 pounds of copper; though it varies according to the size of the bells; a greater quantity of copper being used in the greater bells than in the smaller. Some add lead and brass, others zinc or spelter. Though tin is specifically lighter than copper, yet the gravity of the compound is greater than that of copper. Some speak of a native mineral under the denomination bell-metal, from which Becher affirms he procured zaffer and smalt. See CHEMISTRY.

BELL-MUSCHUS, in botany, a name given by some authors to the plant called bamia moschata, the mosch seed.

BELLON, a distemper common in countries where they smelt lead ore. It is attended with languor, intolerable pains and sensations of griping, and generally costiveness. It frequently proves fatal. Beasts, poultry, &c. as well as men, are subject to this disorder: hence the term

BELLON GROUND, for the space round the smelting houses, because it is dangerous for an animal to feed upon it.

BELLON, or BELLONIUS (Peter), a celebrated French physician, born at Caen, in Normandy, was the author of many tracts on botany, natural history, &c. and gave name to the genus of plants called Bellonia.

BELLONA, in Pagan mythology, the goddess of war, is generally reckoned the sister of Mars; some represent her as both his sister and wife. She is said to have been the inventress of the needle; and from that instrument is supposed to have taken her name. Βελονη, a needle. She was of a cruel and savage disposition, and is commonly represented in an attitude expressive of fury; her hair composed of snakes, clotted with gore, and her garments stained with blood: thus she drives the chariot of Mars, with a bloody whip in her hand; or sometimes holding a lighted torch or brand; at others a trumpet. She had a temple at Rome, near the circus Flaminius, before which stood the column of war, from whence the consul threw his lance when he declared war. She was also worshipped at Cumana, in Cappadocia: and Camden observes, that in the time of the emperor Severus, there was a temple to Bellona in the city of York. This goddess is represented on medals of the Brutii, &c. as in the annexed figure, with a shield in both her hands, and a spear resting on her shoulders.

BELLONARII, in antiquity, priests of Bellona. The bellonarii cut and mangled their bodies with knives and daggers, to pacify the deity, In this they are singular, that they offered their own blood, not that of other creatures, in sacrifice. In the fury and enthusiasm wherewith they were seized on these occasions, they ran about raging, uttering prophecies, and foretelling slaughter, devastations of cities, and revolutions of states: whence Martial calls them turba entheata Bellonæ. In after-times they seem to have abated much of their zeal, and to have turned the whole into a kind of farce, contenting themselves with making signs and appearances of cutting. Lampridius tells us, the emperor Commodus, out of a spirit of cruelty, turned the farce again into a tragedy, obliging them to cut and mangle their bodies really.

BELLONIA, in botany, a genus of the monogynia order, and pentandria class of plants. The characters are, the flower is wheel-shaped, of one leaf with a short tube, but spread open above, and cut into five obtuse segments; it has five stamina, which close together; the germen is situated under the receptacle of the flower, which afterwards becomes an open turbinated seed-vessel, ending in a point, having one cell filled with small round seeds. Of this genus there is only one species known, viz. B. aspera, or shrubby bellonia, which has a rough balm leaf. It is very common in the warm islands of America.

BELLORI (John Peter), of Rome, a celebrated antiquary and connoisseur: author of the lives of the modern painters, architects, and sculptors, and other works on antiquities. He died in 1696.

BELLOVACI, a people of Gallia Belgica, reckoned the bravest of the Belgæ; who anciently possessed that part of France called Beauvoisis, before the revolution in the isle of France.

BEL'LOW, BEL'LOWER, BELLOW'ING. } Ang.-Sax. hlowan; a lowing; a loud roaring noise, like a bull, or like the sea in

a storm; any continued noise that may cause terror.

Till, at the last, he heard a dreadful sound,
Which thro' the wood loud *bellowing* did rebound.
Spenser.

Jupiter became a bull, and *bellowed*; the green Neptune a ram, and bleated. *Shakspeare.*

He fastened on my neck, and *bellow'd* out,
As he'd burst heaven. *Id.*

The rising rivers float the nether ground;
And rocks the *bellowing* voice of boiling seas rebound.
Dryden.

What bull dares *bellow*, or what sheep dares bleat,
Within the lion's den? *Id.*

But now the husband of a herd must be
Thy mate, and *bellowing* sons thy progeny. *Id.*

The dull fat captain, with a hound's deep throat,
Would *bellow* out a laugh in a base note. *Id.*

This gentleman is accustomed to roar and *bellow* so terribly loud, that he frightens us. *Tatler.*

Bellows are properly defined a machine, so contrived as to expire and inspire the air by turns, by enlarging and contracting its capacity. This machine is used in chambers and kitchens, in forges, furnaces, and foundries, to blow up the fire: it serves also for organs and other pneumatic instruments, to give them a proper degree of air. All these are of various constructions, according to their different purposes; but in general they are composed of two flat boards, sometimes of an oval, sometimes of a triangular figure. Two or more hoops, bent according to the figure of the boards, are placed between them; a piece of leather, broad in the middle, and narrow at both ends, is nailed on the edges of the boards, which it thus unites together; as well as on the hoops which separate the boards, that the leather may the easier open and fold again: a tube of iron, brass, or copper, is fastened to the undermost board, and there is a valve within that covers the holes in the under board, to keep in the air

Anacharsis, the Scythian, is said to have been the inventor of bellows. Their action bears a near affinity to that of the lungs; and what we call blowing in the latter, affords a good illustration of what is called respiring in the former. Animal life itself may on some occasions be subsisted by blowing into the lungs with a pair of bellows. Dr. Hooke's experiment is remarkable: having laid the thorax of a dog bare, by cutting away the ribs and diaphragm, pericardium, &c. and having cut off the aspera arteria below the epiglottis, and bound it on the nose of a bellows, he found, that as he blowed, the dog recovered, and as he ceased, fell convulsive; and thus was the animal kept alternately alive and dead above the space of an hour. There are bellows made wholly of wood, without any leather about them; one of which is preserved in the repository of the Royal Society; and Dr. Plot describes another in the copper-works at Ellaston in Staffordshire. Bellows are in constant use among the apparatus of the Royal Humane Society, for the recovery of the apparently drowned: and will enable any intelligent person to inflate the lungs, and by occasional pressure on the breast to imitate the action of natural breathing.

For the great operations of metallurgy, such as are of uncommon construction, and great power, are found necessary, and have generally assumed the name of Blowing Machines, which see.

Chinese Bellows consist of a box of wood, about two feet long, and one foot square; though the machine may be made of any requisite dimensions. The opposite boards are exactly parallel to each other, smooth, and varnished both on the outer and inner sides. A thick square board of wood, which exactly fits the internal cavity of the box, is pushed backwards and forwards, from end to end of the box, by means of a cylindrical rod of wood, which comes out at an aperture in the centre of one end of the box, and in order to make the rod move steadily, and prevent the escape of air, the aperture through which the rod passes has a wooden tube projected from it to the distance of a little more than an inch. For the conveniency of pushing the rod backwards and forwards, its extremity is furnished with a handle, or cross bar of wood, like the head of a gimlet, by which it can be laid hold of. In the bottom of the box, at each end, there is a small conical or plug valve, concealed in the upper board of the box. The two valves below admit air alternately into the box, while the valves above alternately discharge the air; and, at the same time, the valves prevent the air from returning the same way it had once passed. The upper board is double, and the space betwixt them serves as a reservoir in which the accumulated air is condensed. Into the side of this reservoir, between the boards, a metallic pipe is inserted, which conducts the air, in a constant stream, into the furnace or forge. It is evident that if the movable board or piston, within the box, be pushed by the rod from the end next the handle to the opposite end of the box, all the air in the box will be forced up through the valve above that end of the box; while the under valve at that end will shut, and prevent its escape downwards: at the same time new air will rush in through the under valve next the handle, and again fill the box. By pulling out the rod, the movable board or piston will be drawn in the opposite direction, and all the air in the box will now be forced up through the upper valve next the handle, into the reservoir, and from thence, as it cannot escape by the opposite valve, rush through the metallic pipe into the furnace. Thus these valves, by opening and shutting alternately, as long as the piston or movable board is pushed or drawn by the rod, backwards and forwards, from end to end of the box, a constant and powerful stream of air will be blown into the furnace. The above description is copied from a machine of this sort, which the ingenious Dr. Lind, of Windsor, brought from Canton, in China. By its help he could melt pig-iron in a small furnace, consisting of an Austrian crucible, fixed on a table. Such bellows are neither so costly, nor so apt to go wrong, as those composed of leather. They may be made of any dimensions, and may be wrought by any power as well as that of the hand. It is surprising that no attempts have been made to bring them into use in this country.

Bellows, Hydrostatic. See Hydrostatics.

Bellows of an Organ are commonly six feet long, and four broad; each having an aperture

of four inches, that the valve may play easily. There should likewise be a valve at the nose of the bellows, that the one may not take the air from the other. To blow an organ of sixteen feet, there are required four pairs ofthese bellows. They are wrought by a man called the blower; and, in small organs, by the foot of the player.

Bellows, Water, a contrivance to save expense in the fusion of metals, wherein water, falling through a funnel into a close vessel, sends from it so much air as blows the fire. See Furnace.

BELL-PEPPER, in botany. See Capsicum.

BELL-ROCK, or Cape, a dangerous ridge of sunken rocks, lying about twelve miles east from the point of Fife-ness, and an equal distance south from Arbroath harbour, between the openings of the Friths of Tay and Forth. The ridge extends about a mile in length, and half a mile in breadth; the top of the rock only being seen a few hours at low water in spring tides. This rock not only renders the navigation of the Tay and Forth very hazardous, but is also highly dangerous to all vessels navigating coast-wise. Every year, formerly, vessels of great value were wrecked upon it, and there is reason to suspect that many which were supposed to have foundered at sea, have suffered on this dangerous reef. It is a remarkable fact that hardly a single instance has been known of a vessel being saved which had the misfortune to strike upon this rock. Captain Brodie of the royal navy placed a beacon on it some years ago, but though the greatest care was taken to have it properly secured, the first storm broke the chains, and the beacon was driven ashore. Previous to the erection of the new and noble light-house now placed here, it was commonly remarked that even if it were practicable to erect it upon such a sunken rock, no one would be found hardy enough to live in an abode so dread and dreary, and that it would fall to the lot of the projectors themselves to possess it for the first winter. The bill appointing commissioners for this great undertaking, however, passed both houses of parliament late in the session of 1806. In the following summer, a vessel was fitted out as a floating-light, and moored off the Bell-rock. Captain Brodie had previously constructed a very ingenious model of a cast-iron light-house standing on pillars; and Mr. Murdoch Downie, author of several marine surveys, brought forward a plan of a light-house, to stand upon pillars of stone. Mr. Telford, the engineer, was also employed in some preliminary steps, connected with Mr. Downie's enquiries. But Mr. Stevenson, engineer for the commissioners of the northern light-houses, modelled the first design, which was submitted to the opinion and advice of Mr. Rennie. This distinguished engineer coincided with Mr. Stevenson in preferring a building of stone, upon the principles of the Eddystone light-house.

The Bell-rock Light-house is a circular building, the foundation-stone of which is nearly on a level with the surface of the sea at low-water of ordinary spring-tides; and consequently at high-water of these tides, the building is immersed to the height of about fifteen feet. The two first or lower courses of the masonry are imbedded into the rock, and the stones of all the courses are dovetailed and joined with each other, forming one connected mass from centre to circumference. The successive courses of the work are also connected by joggles of stone; and to prevent the stones from being lifted up by the force of the sea, while the work was in progress, each stone of the solid part of the building had two holes bored through it, entering six inches into the course immediately below, into which oaken tree nails, two inches in diameter, were driven, after Mr. Smeaton's plan at the Eddystone. The cement used at the bell-rock, like that of the Eddystone, was a mixture of pozzolano, earth, lime, and sand, in equal parts, by measure. The building is of a circular form, composed of stones of the weight of from two tons to half a ton each. The ground course measures 42 feet in diameter, and the building diminishes, as it rises to the top, where the parapet-wall of the light-room measures only 13 feet in diameter. The height of the masonry is 100 feet, but including the light-room, the total height is 115 feet. The building is solid from the ground course to the height of 30 feet, where the entry-door is situate, to which the ascent is by a kind of rope-ladder with wooden steps, hung out at ebb tide, and taken into the building again when the water covers the rock; but strangers to this sort of climbing are taken up in a chair, by a movable crane projected from the door, from which a narrow passage leads to a stone stair-case 13 feet in height. Here the walls are seven feet in thickness, but they generally diminish from the top of the stair-case to the parapet-wall of the light room, where they measure one foot in thickness. The upper half of the building may be described as divided into six apartments for the use of the light-keepers, and for containing light-house stores. The lower or first, formed by an inside scarfement of the walls at the top of the stair-case is chiefly occupied with water tanks, fuel, and the other bulky articles; the second floor is for the oil, cisterns, glass, and other light-room stores; the third is occupied as a kitchen; the fourth is the bed-room, the fifth the library or strangers' room, and the upper apartment forms thelight-room. The floors of the apartments are of stone, and the communication is made by means of wooden ladders, excepting in the light-room, where every article being fire proof, the steps are made of iron. There are two windows in each of the three lower apartments, but the upper have each four windows. The casements are all double, and are glazed with plate-glass, having besides an outer storm-shutter, or dead light of timber, to defend the glass from the waves and spray. The parapet wall of the light-room is six feet in height, and has a door which leads out to the balcony or walk formed by the cornice round the upper part of the building; which is surrounded by a cast-iron rail, wrought like net-work. This rail rests upon batts of brass and has a massive coping, or top rail, of the same metal. In the kitchen, there is a grate or open fire-place of cast iron, with a smoke tube of the same metal, which passes through the several apartments of the light-room, and heats them in its passage upwards. This grate and

chimney merely touch the building, without being included or built into the walls, which, by this means, are neither weakened, nor liable to be injured by it. The timber of the doors, the pannelled partitioning of the rooms from the stairs, and the bed frames and furniture in general, are of wainscot.

The light-room, and its apparatus was entirely prepared at Edinburgh. It is of an octagonal figure, 12 feet across, and 15 in height, formed with cast-iron sashes, glazed with large plates of polished glass, measuring about 2 feet 6 inches by 2 feet 3 inches, each plate being a quarter of an inch thick. The light-room is covered with a dome roof of copper, terminating in a large gilded ball, with a vent-hole in the top. The light of the Bell-rock is very powerful, and is readily seen at the distance of six or seven leagues, when the atmosphere is clear. The light is from oil, with Argand burners placed in the focus of silver plated reflectors, measuring 24 inches over the lips; the silvered surface or face being hollowed or wrought to the parabolic curve. That the Bell-rock light may be easily distinguished from all other lights upon the coast, the reflectors are ranged upon a frame with four faces or sides, which, by a train of machinery, is made to revolve upon a perpendicular axis once in six minutes. Between the observer and the reflectors, on two opposite sides of the revolving frame, shades of red glass are interposed, in such a manner, that during each entire revolution of the reflectors, two appearances, distinctly differing from each other, are produced; one is the common bright light familiar to every one, but, on the other, or shaded sides, the rays are tinged of a red color. These red and bright lights, in the course of each revolution, alternate with intervals of darkness, which, in a very beautiful and simple manner, characterise this light.

In foggy weather two large bells of about 12 cwt. each, are tolled day and night by machinery. Vessels who cannot see the lights, thus get warning to put about. The establishment at the Bell-rock, consists of a principal light-keeper, who has 60 guineas per annum, paid quarterly, a principal assistant, who has 55 guineas; and two other assistants at 50 guineas each, besides a suit of uniform clothes, in common with the other light-keepers of the northern light-houses, every three years. While at the rock, these men get a stated allowance of bread, beef, butter, oat-meal, pot-barley, and vegetables, besides small beer, and an allowance of fourpence per day each for the purchase of tea and other necessaries. At Arbroath, the most contiguous town on the opposite coast, a suite of buildings has been erected, where each light-keeper has three apartments for his family. Here the master and mate of the light-house tender, have also accommodation for their families; a plot or piece of an enclosed garden ground is attached to each house, and likewise a seat in one of the pews in the parish church of Arbroath. Connected with these buildings there is a signal tower erected, which is about 50 feet in height. At the top of it, there is a room with an excellent five feet achromatic telescope, placed upon a stand. From this tower, a set of corresponding signals is arranged, and kept up with the light-keepers at the rock. Three of the light-keepers are always at the light-house, while one is ashore on liberty, whose duty it is for the time to attend the signal room; and when the weather will admit of the regular removal of the light-keepers they are six weeks at the rock, and a fortnight ashore with their families.

The attending vessel for the Bell-rock, and the light-houses at the isle of May and Inchkeith, in the Firth of Forth, is a very handsome little cutter of about 50 tons register, carrying upon her prow a model of the light-house, and is appropriately named the Pharos. She is stationed at Arbroath, and is in readiness to proceed for the rock at new and full moon, or at spring-tides, carrying necessaries, and the light-keeper on leave, to the rock, and returning with another. This vessel is navigated by four men, including the master, and is calculated for carrying a boat of 16 feet keel, or of sufficient dimensions for landing at the rock in moderate weather. The master and mate are kept in constant pay, and have apartments in the establishment ashore; the former, acting as a superintendent, has the charge of the buildings and stores kept at Arbroath.

BELLULÆ, in zoology, the sixth order of the mammalia; the character of which is, that their fore teeth are obtusely truncated, their feet hoofed their walk heavy, and their food vegetables. See Zoology.

BELLUGA, in ichthyology, a large fish, accounted a species of sturgeon, and called by Artedi, accipenser tuberculis carens It is like the sturgeon in shape, but its snout is shorter and thicker. Of its row or spawn is made cavear, and some of them are so large as to yield 900 weight of it. The fish is very common and very large in the Volga, near the city of Astracan. It has been caught there thirty-six feet long, and eighteen thick. It is also found in the Don, and other rivers, and in the Baltic and Caspian seas. See Accipenser.

BELLULA Bos, in icthyology, a name given by Paulus Jovius to that species of the ray fish which was called by the old Greek and Latin writers bos marinus, and by the late authors raja oxyrynchus. It is distinguished by Artedi, by the name of the variegated ray, with ten prickly tubercles on the middle of the back.

BELLUM, Lat. war; in old law, trial by combat.

BELLUNESE, a territory of Italy, which belonged to the Venetians, till ceded to Austria by the treaty of Campo Formio. It now forms a part of the Lombardo-Venetian kingdom, and lies between Friuli, Cadorino, Feltrino the bishopric of Trent and Tyrol. It is thirty miles long, and twenty-two broad, and produces plenty of corn, wine, fruits, &c. besides rearing great numbers of cattle. It contains besides the capital, Belluno, 200 towns, villages, and forts, with 40,000 inhabitants.

BELLUNO, a town of Italy, and a bishop's see; is situated among the Alps, on the river Piave.

BELLUTUS (Sicinius), a plebeian Roman, who, about the year of Rome 256, headed the people in their opposition to the exorbitant power

of the Senate and Patricians; and under whom they retired to the Mons Sacer, about three miles from Rome, intending to form a new establishment for themselves, till, after repeated messages sent in vain by the senate, Menenius Agrippa persuaded them to return, by the well known fable of the belly and the other members. On this occasion the tribune-ship being first instituted, Bellutus was appointed the first of the five Tribunes, A. U. C. 560. See ROME

BELLY, *v.* & *n.* BELLY'ACHE, BELLY'BOUND, BELLY'CHEER, BELLY'FULL, BELLY'FARE, BELLY'SLAVE, BELLY'GOD, BELLY'PINCHED, BELLY'TIMBER, BELLY'WORM. Gothic, *balgs*; Ang.-Sax. *bælg*; Lat. *bulga*; that part of the human body which reaches from the head to the thighs, containing the bowels; the womb; any thing that swells out to a large capacity. To belly out, is to swell out; to inflate; to sketch; to dissend.

The body's members
Rebell'd against the *belly*; thus accus'd it:—
That only like a gulf it did remain,
I'th' cupboarding the viand, never bearing,
Like labour with the rest. *Shakspeare.*

Do you set down your name in the scroll of youth, that are written down old with all the characters of age? Have you not a moist eye, a dry hand, a yellow cheek, a white beard, a decreasing leg, an increasing *belly*? *Id.*

This night, wherein the cubdrawn bear would couch,
The lion and the *belly-pinched* wolf
Keep their fur dry, unbonnetted he runs. *Id.*

Back and side go bare, go bare,
Both hand and foot go cold:
But *belly*, God send thee good ale enough,
Whether it be new or old. *Still. Old Song.*

With Methos, Gluttony, his guttling brother,
Twin parallels, drawn from the self-same line;
Foully like was either to the other,
And both most like a monstrous *belly'd* swine.
Fletcher. Purple Island.

What infinite waste they made this way, the only story of Apicius, a famous *bellygod*, may suffice to show. *Hakewell.*

Thus, by degrees, day wastes, signs cease to rise,
Bellying earth, still rising up, denies
Her light a passage, and confines our eyes.
Creech's Manilius.

Loud rattling shakes the mountains and the plain,
Heav'n *bellies* downwards, and descends in rain.
Dryden.

Amidst these disports, forget they not to drench
Themselves with *bellying* goblets. *Philips.*

The strength of every other member
Grounded on your *belly-timber*. *Prior.*

BELLY in anatomy, the abdomen. See ANATOMY, Index.

BELLY, DRAGON'S, venter draconis, is used by the astronomers to denote the point in a planet's orbit, wherein it has its greatest latitude, or is farther distant from the ecliptic, more frequently called its limit.

BELMONTE, a town of Italy, in the hither Calabria and kingdom of Naples. It is situated on the coast of the Tuscan sea. It is celebrated for its fine marbles.

BELOCK, be and lock. See LOCK.

BELOE (William), a native of Norwich, educated at Cambridge. About 1773 he became assistant to Dr. Parr, who was then head master of the Norwich grammar school. He shortly after obtained the vicarage of Earlham. Removing to the metropolis, he was made master of Emanuel College, Westminster, and he joined with Archdeacon Nares in establishing and editing the British Critic. His connexion with this work continued till the close of the forty-second volume. He also obtained the living of Allhallows, London-wall, a prebend in St. Paul's, and the desirable post of a librarian to the British Museum. Of the last situation, however, he was deprived, in consequence of the loss of some valuable prints, which were stolen by a dishonest artist. He died at Kensington in 1817. He translated Herodotus, and Aullus Gellus, and was the author of Miscellanies, 3 vols. Anecdotes of Literature and Scarce books, 6 vols. 8vo. The Sexagenarian (his own memoirs), 2 vols. 8vo. and some works of minor importance.

BE'LOMANCY, *n. s.* From βελος and μαντεια.

Belomancy, or divination by arrows, hath been in request with Scythians, Alans, Germans, with the Africans and Turks of Algiers.
Brown's Vulgar Errours.

BELOMANCY, BELOMANTIA, was practised in the east, but chiefly among the Arabians, and in different ways. One was to mark a parcel of arrows, and put eleven or more of them into a bag: these were drawn out; and according as they were marked or not, they judged of future events. Another way was to have three arrows, upon one of which was written, 'God orders it me:' upon another, 'God forbids it me;' and upon the third nothing. These were put into a quiver, out of which one was drawn at random; if it happened to be that with the first inscription, the thing was to be done: if it chanced to be that with the second, it was let alone; but if it it proved that without inscription, they drew over again. Belomancy is an ancient practice, and probably that which Ezekiel mentions, chap. xxi. 21. At least St. Jerome understands it so, and observes that the practice was frequent among the Assyrians, and Babylonians. Something like it is also mentioned in Hosea, chap. iv. only that slaves are mentioned instead of arrows, which is rather that of demancy than belomancy. Grotius, as well as Jerome, confounds the two together, and shows that it prevailed among the Magi, Chaldeans, and Scythians; whence it passed to the Sclavonians, and thence to the Germans, who, as Tacitus observes, made use of it.

BELON (Peter), born at Mans, in France, flourished about the middle of the sixteenth century. He was murdered near Paris by one of his enemies, in 1565. His principal works are, 1. De Arboribus Coniferis, 4to. Paris, 1553. 2. Histoire de la Nature des Oiseaux, fol. 1555. 3. Portraits d'Oiseaux, 4to. 1557. 4. Histoire des Poissons, 4to. 1551, with plates. 5. De la Nature et Diversité des Poissons, 8vo. 1555.

BELONE, in ichthyology, the trivial name of a species of esox. See ESOX.

BE'LONG, *v. n.* Dutch *belangen*. To be the property, province, or business of; to adhere, appertain, or have relation to.

To light on a part of a field *belonging* to Boaz. *Ruth.*

There is no need of such redress;
Or if there were it not *belongs* to you.
Shakspeare.

The declaration of these latent philosophers *belongs* to another paper. *Boyle.*

To Jove the care of heav'n and earth *belongs* *Dryden.*

He went into a desart *belonging* to Bethsaida. *Luke.*

To whom *belongest* thou? whence art thou? 1 *Samuel.*

The faculties *belonging* to the supreme spirit, are unlimited and boundless, fitted and designed for infinite objects. *Cheyne.*

He careth for things that *belong* to the Lord. 1 *Corinth.*

BELOSTOMA, in zoology, a genus of insects of the order hemiptera, family hydrocorisæ. Its generic character is, fore feet terminated by a single hook; antennæ semi-pectinated. There is no European species.

BE'LOVED, *part.* From belove, derived of love. It is observable, that though the participle be of very frequent use, the verb is seldom or never admitted; as we say 'you are much *beloved* by me,' but not 'I *belove* you.' Loved; dear.

I think it is not meet,
Mark Antony, so well *beloved* of Cæsar,
Should outlive Cæsar. *Shakspeare.*

In likeness of a dove
The Spirit descended, while the Father's voice
From heav'n pronounc'd him his *beloved* Son.
Milton.

Each lonely scene shall thee restore,
For thee the tear be daily shed;
Belov'd till life can charm no more,
And mourn'd till pity's self be dead.
Collins' Dirge.

BE'LOW, *prep.* & *adv.* } Be and low. Low
BE'LOWT, *v.* } is the past participle of the Ang.-Sax. verb, licgan, *jacere, cubiere*. *Belowt*, is to treat as a *lowt*. Under, in place; not high; unbefitting; unworthy of; in the lower place; in hell; in earth, in opposition to heaven.

For all *below* the moon I would not leap. *Shakspeare.*

He'll beat Aufidius' head *below* his knee,
And tread upon his neck. *Id.*

To men standing *below* on the ground, those that be on the top of Paul's seem much less than they are, and cannot be known; but, to men above, those *below* seem nothing so much lessened, and may be known. *Bacon.*

The upper regions of the air perceive the collection of the matter of the tempests and winds before the air here *below*; and therefore the obscuring of the smaller stars, is a sign of tempest following. *Id.*

His sultry heat infects the sky;
The ground *below* is parch'd, the heav'ns above us fry.
Dryden.

'Tis much *below* me on his throne to sit;
But when I do, you shall petition it. *Id.*

This said, he led them up the mountain's brow,
And show'd them all the shining fields *below*. *Id.*

The gladsome ghosts in circling troops attend;
Delight to hover near, and long to know
What bus'ness brought him to the realms *below*. *Id.*

When suff'ring saints aloft in beams shall glow,
And prosp'rous traitors gnash their teeth *below*.
Tickell.

And let no tears from erring pity flow,
For one that's bless'd above, immortaliz'd *below*.
Smith.

The fairest child of Jove,
Below for ever sought, and bless'd above. *Prior.*

The noble Venetians think themselves equal at least to the electors of the empire, and but one degree *below* kings. *Addison.*

His Idylliums of Theocritus are as much *below* his Manilius, as the fields are *below* the stars. *Felton.*

Sieur Gaulard, when he heard a gentleman report, that at supper they had not only good cheer, but also savoury epigrams and fine anagrams, returning home, rated and *belowted* his cook as an ignorant scullion, that never dressed him either epigrams or anagrams. *Camden.*

Father of all above and all *below*,
O great! and far beyond expression so,
No bounds thy knowledge, none thy power confine,
For power and knowledge in their source are thine.
Parnell.

BELPECH, a town of France, in Languedoc, department of the Aude. In 1369 this place was taken by the English, and among the prisoners was Isabella, mother of the queen of France. It is seven miles north-west of Mirepoix, and twelve south-west of Castelnaudary. Long. 150° E., lat. 43° 12′ N.

BELSHAZZAR, NABONADIUS, or LABYNITUS, the last king of Babylon, is generally agreed to have been the son of Evil-Merodach, by the celebrated Nitocris, and grandson of Nebuchadnezzar the Great. He succeeded upon the deaths of his uncle-in-law Neriglissar, and his infant cousin Laborosoarchod (with whom some authors confound him), about A. M. 3393, or, according to others, 3449. He is said to have reigned seventeen years, but was so devoted to pleasure, that nothing is recorded of him, excepting his folly, dissipation, and impiety, till the last day of his reign and life: when the miraculous vision of the hand-writing on the wall, denouncing the immediate overthrow of his empire, alarmed him and his impious nobles, in the midst of their guilty festival; and led him to apply for advice, when too late, to the long neglected prime minister and prophetic instructor of his grandfather. See Daniel, chap. v. Babylon was taken by Cyrus, Belshazzar slain, and the kingdom transferred to the Medes and Persians; A. M. 3410, or 3466, and about A. A. C. 538. See BABYLONIA.

BEL'SWAGGER, *n. s.* A cant word for a whoremaster.

You are a charitable *belswagger*; my wife cried out fire, and you cried out for engines. *Dryden.*

END OF VOL III.